Medical Lib.

THE BOSTON
Medical and Surgical
JOURNAL

Owned and Published by THE MASSACHUSETTS MEDICAL SOCIETY

OFFICIAL ORGAN OF THE NEW ENGLAND SURGICAL SOCIETY, AND OF THE BOSTON SURGICAL SOCIETY, INC.

Vol. 185, No. 7
$6 per Annum. 25c per copy

THURSDAY, AUGUST 18, 1921

Published weekly in Boston, at 126 Massachusetts Avenue

CONTENTS

ORIGINAL ARTICLES

PNEUMONIA IN INFANTS AND CHILDREN. A CLINICAL STUDY OF 208 HOSPITAL CASES. *By Arthur Bates Lyon, M.D.*, Boston.

ECZEMA IN THE BREAST FED BABY, AND PROTEIN SENSITIZATION. *By Edward Scott O'Keefe, M.D.*, Boston.

SIGNIFICANT REACTIONS OF THE ARTERIAL TENSION. MANIFESTATIONS OF THE ANGIO-KINETIC ENERGY CLINICALLY OBSERVED AND INTERPRETED. *By Claës Julius Enebuske*, Boston.

CLINICAL DEPARTMENT

TYPHOID OSTEITIS, WITH REPORT OF A CASE TREATED BY THE CARREL-DAKIN METHOD. *By Philip D. Wilson, M.D.*, Boston.

LIPOMA OF THE MESENTERY. *By B. H. Alton, M.D.*, Worcester, Mass.

EDITORIALS

OPPORTUNITIES FOR COÖRDINATE EFFORT IN PROMOTING PROTECTION OF THE PEOPLE.

ANTERIOR POLYMYELITIS AND TYPHOID FEVER IN BOSTON.

BOTULISM AND ENCEPHALITIS LETHARGICA.

For complete table of contents, see first text page.

JUST ISSUED—NEW (3rd) EDITION

Tousey's Electricity, X-rays & Radium

We believe there is no book on these subjects quite so complete as this one. Every detail is given and clearly illustrated—from the selection of the equipment and its installation and care to its actual use in applying these agents in diagnosis and treatment.

For the *new (3rd) edition,* the book has been given a searching revision, new matter and new illustrations increasing it in size by over 100 pages. Further, a great deal of more or less obsolete material has been eliminated and replaced by newer advances. Particularly heavy has been the revision of the gastro-intestinal section. The subject of electricity occupies one half the book. Dr. Tousey's work in this field stamps this book as authoritative, because in it he has given the profession a record of his own personal experience.

By SINCLAIR TOUSEY, M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Octavo of 1337 pages, with 861 illustrations, 16 in colors. Cloth, $10.00 net.

W. B. SAUNDERS COMPANY **Philadelphia and London**

Entered at the Post-office at Boston as second-class matter.

Atophan

TRADE MARK

Not a "hit and miss" relief of pain and congestion at the expense of the heart, kidneys, intestines and nervous system, like in the old-time coal-tar derivatives.

But the promptest and most reliable analgesic and decongestive action so far known with notable freedom from heart-depressant, kidney-irritant, constipating and cumulative toxic by-effects.

Information, Literature and Ample Trial Quantity from

SCHERING & GLATZ INC.
150 Maiden Lane, New York.

NEURALGIA
NEURITIS
LUMBAGO SCIATICA

HAY FEVER MEMORANDA

SERIES III.

LATE SUMMER TYPE. Patients whose hay fever develops in mid-August and continues until frost should be tested with the pollens of such weeds as ragweed, goldenrod and the related sunflower. Also with the pollen of the one important late flowering grass, viz. corn, if exposed to same. Together with any pollen of local importance, such as alfalfa in some sections or cockleburr in others.

PATIENTS WHOSE HAY FEVER CONTINUES beyond the pollinating seasons—even into the winter—should be tested with bacterial proteins to locate a possible secondary sensitization of this type.

For those who react to bacterial proteins, specific bacterial vaccines are indicated as supplementary treatment.

ARLCO-POLLEN EXTRACTS

For **Cutaneous Tests** and **Treatment** cover **Early** and **Late Spring** also **Summer** and **Autumn.**

Literature and List of Pollen Extracts and Specific Bacterial Vaccines on request.

THE ARLINGTON CHEMICAL CO.

Yonkers, New York

The Boston Medical and Surgical Journal

TABLE OF CONTENTS

August 18, 1921

ORIGINAL ARTICLES

PNEUMONIA IN INFANTS AND CHILDREN. A CLINICAL STUDY OF 208 HOSPITAL CASES. *By Arthur Bates Lyon, M.D.*, Boston. 189

ECZEMA IN THE BREAST FED BABY, AND PROTEIN SENSITIZATION. *By Edward Scott O'Keefe, M.D.*, Boston. 194

SIGNIFICANT REACTIONS OF THE ARTERIAL TENSION. MANIFESTATIONS OF THE ANGIO-KINETIC ENERGY CLINICALLY OBSERVED AND INTERPRETED. *By Claës Julius Enebuske*, Boston (*concluded*). 196

CLINICAL DEPARTMENT

TYPHOID OSTEITIS: WITH REPORT OF A CASE TREATED BY THE CARREL-DAKIN METHOD. *By Philip D. Wilson, M.D.*, Boston. 201

LIPOMA OF THE MESENTERY. *By B. H. Alton, M.D.*, Worcester, Mass. 205

PERFORATION OF MECKEL'S DIVERTICULUM OF JEJUNUM. *By Thomas R. Donovan, M.D.*, Fitchburg, Mass. 207

BOOK REVIEWS

Physiological Chemistry. By Albert P. Matthews, Ph.D. 207

CURRENT LITERATURE DEPARTMENT

SIGNIFICANCE OF DIABETES MELLITUS IN MENTAL DISORDERS. 208

THE DIAGNOSIS OF CHRONIC GENITAL GONORRHEA IN THE FEMALE. 208

ROENTGEN RAY AND TUBERCULOSIS IN INFANTS AND CHILDREN. 208

ENLARGEMENT OF THE SPLEEN IN EXPERIMENTAL ACIDOSIS. 208

BRONCHIAL SPIROCHETOSIS. 208

THE EFFECT OF PROHIBITION ON THE INCIDENCE OF PORTAL CIRRHOSIS. 208

AMERICAN CHILDREN IN THE TROPICS. 209

NATURAL RECOVERY OF GANGRENOUS GUT. 209

THE IMPORTANCE OF A THOROUGH EXPLORATION OF THE INTRA-ABDOMINAL ORGANS IN OPERATIONS FOR EPIGASTRIC HERNIA. 209

POST-OPERATIVE MASSIVE COLLAPSE OF THE LUNG. 209

TREATMENT OF CARCINOMA OF THE TONGUE. 209

PRINCIPLES UNDERLYING THE TREATMENT OF HEART DISEASE BY EXERCISE. 209

EDITORIALS

OPPORTUNITIES FOR COÖRDINATE EFFORT IN PROMOTING PROTECTION OF THE PEOPLE. 210

ANTERIOR POLIOMYELITIS AND TYPHOID FEVER IN BOSTON. 211

BOTULISM AND ENCEPHALITIS LETHARGICA. 211

MEDICAL NOTES. 211

OBITUARIES

JOHN FRANCIS CROSTON, M.D., 213

EBENEZER ALDEN DYER, M.D. 214

MISCELLANY

DRUG REMOVAL AND DEATH. *By John P. Davin, M.D.* 214

MONTHLY BULLETIN. INSTRUCTIVE DISTRICT NURSING ASSOCIATION. 216

CORRESPONDENCE

RURAL HEALTH AND MEDICAL SERVICE. *Paul W. Goldsbury, M.D.* 216

IMPENDING DANGERS. *J. R. Fowler, M.D.* 217

THE ALCOHOL QUESTION. *Eliott P. Jossin.* 217

Original Articles.

PNEUMONIA IN INFANTS AND CHILDREN. A CLINICAL STUDY OF 208 HOSPITAL CASES.

BY ARTHUR BATES LYON, M.D., BOSTON.

[From the Pneumonia Service at the Boston City Hospital.]

FROM February 3, 1919, to February 1, 1921. 208 cases of pneumonia in patients of twelve years of age, or younger, were admitted to the Special Service for the care of acute respiratory infections at the Boston City Hospital. The list does not include eleven cases of influenza in whom pneumonia developed, nor fourteen cases of empyema admitted as such. Only the clinical features of these 208 cases are here considered, since in later papers it is proposed to deal with the bacteriological findings in pneumonias of childhood as seen in this hospital, and with the matter of treatment.

GENERAL CONSIDERATIONS.

Of the 208 cases of pneumonia, 109 were diagnosticated as lobar and 99 as lobular.* The *age incidence* of the two forms and the *mortality* are shown in the following table:

TABLE I.

AGE INCIDENCE AND MORTALITY IN 208 CASES OF PNEUMONIA IN INFANTS AND CHILDREN.

	Years 1st and 2nd		Years 3rd to 5th		Years 6th to 12th			
	No. of Cases	% Mortality	No. of Cases	% Mortality	No. of Cases	% Mortality	Total No. Deaths	Total % Mort.
Lobar pneumonia	12	0	28	0	69	7.3	5	4.6
Broncho-pneumonia	52	50	25	28	22	9.1	35	35.4
Total	64	40.6	53	15	91	7.7	40	19.2

Bronchopneumonia is preëminently a disease of infancy and early childhood. Among 445 cases occurring before the sixth year, Pisek and Pease[1] found 381, or 85 per cent., to fall within the first two years. In Holt's[2] 426 cases of lobular pneumonia in patients under five years of age, 366, or about 85 per cent., were among infants. Approximately fifty per cent. of our bronchopneumonias fall in that period of life. In general, after the fourth year bronchopneumonia occurs only infrequently except as a complication of some other disease of the respiratory tract—notably measles and pertussis.

The exact relative frequency of broncho and lobar pneumonia in infancy is not an easy matter to determine. Holt[2] gives the ratio of

* While, perhaps, the majority of pneumonias in infants and young children are quite typical and easy to classify, in many individual cases the differention of lobar from bronchopneumonia is very difficult, sometimes almost impossible. Those cases in which evidence of the degree of consolidation was uncertain have generally been regarded as bronchopneumonia.

bronchopneumonia to lobar pneumonia for this time of life as approximately three to one. Pisek and Pease[1] found a ratio of about two [illegible] is considered by some other writers to be as high as five to one. In our own series, it was slightly higher than four to one. Morse,[3] on the other hand, has published figures for 178 cases of infantile pneumonia in which the lobar was nearly twice as common as the lobular form. Granting that, as a rule, bronchopneumonia predominates during infancy, yet it is important to remember that lobar [illegible] disease even in the first months and years of life.

After the period of infancy, the rapid fall in the incidence of bronchopneumonia is accompanied by a relative, and probably an absolute, increase of lobar pneumonia. Thus, in 356 cases of lobar pneumonia studied by Comby,[4] 45 cases occurred in infants, while there were 170 cases in the third to the fifth year period, and 102 in the next five year period. Holt and Howland,[2] in 500 cases, found 76 cases in the first two years of life, 309 cases in the next half decade, and 104 from that period to the end of the tenth year; and Dunlop's[5] 147 cases showed 45 in infancy, 42 in the following four year period, and 60 in the period from six to twelve years.

During infancy, whatever be the type of pneumonia, the disease offers a grave prognosis. Pisek and Pease[1] report a mortality of 52.6 per cent. among 226 bronchopneumonias during the first year of life, and 40.2 per cent. mortality among 75 lobar pneumonias during the same period. For the second year of life, they obtained a mortality of 29 per cent. among 155 bronchopneumonias, and of 34 per cent. among 97 lobar pneumonias. Holt[2] found a death rate of 66 per cent. among 202 bronchopneumonias during the first year, and of 55 per cent. among 102 cases during the second year. Dunlop[5] gives a mortality of 26.6 per cent. for his lobar pneumonias in infants. The death rate in our series of bronchopneumonias as shown in Table I is considerably lower.

During childhood, bronchopneumonia, while less common than in infancy, still shows a high mortality rate. Dunlop[5] gives the death rate among 353 cases in children in his own wards as 25.1 per cent. He states that at the Edinburgh Sick Children's Hospital, the general mortality from this disease for a period of ten years was 28 per cent. He quotes the mortality rates of other authors without introducing statistics—Keating, 49 per cent.; Holt, 65 per cent.; Morse, 75 per cent.; Pepper, 30 to 50 per cent.; Donkin, 50 per cent. On the other hand, the death rate for lobar pneumonia in childhood, comparing it with the death rate for bronchopneumonia and with that for lobar pneumonia in adults, is surprisingly low. After the fifth year of life, Koplik[6] found not more than one death in eight cases of the croupous form. Pisek and Pease,[1] in 91 cases occurring during the third to the sixth years, found a mortality of 11 per cent. Schlesinger[7] and Taylor[8] figure the mortality for lobar pneumonia in childhood to be "from three to four per cent." Dunlop's[5] figures for 82 cases are still lower, namely 2.9 per cent. There were only five deaths in our entire series of 109 cases of lobar pneumonia, and of these, three showed complications — two laryngeal diphtheria, and one acute nephritis which antedated the pulmonary infection. One recalls the dictum of Henoch,[9] — "Fibrinous pneumonia, if it does not occur under very unfavorable circumstances (nephritis, typhoid fever, tuberculosis) is one of the most favorable diseases of childhood from the prognostic standpoint."

Sex is an unimportant factor as regards pneumonia below twelve years. Males are liable in a slightly greater degree than females.

LOBAR PNEUMONIA—109 CASES.

The age incidence and mortality have been shown in Table I.

Distribution. The distribution of the lesions in our own series is compared with the findings of other observers in Table II.

TABLE II.

DISTRIBUTION OF LESIONS OF LOBAR PNEUMONIA IN INFANTS AND CHILDREN.

Series	No. of Cases	Right Upper Lobe	Right Lower Lobe	Left Upper Lobe	Left Lower Lobe	More than One Lobe
Comby[4]	356	117	31	65	75	*
Dunlop[5]	147	23	25	11	63	25
Barthez and Sanné[10]	408	170	41	47	69	*
Koplik[6]	217	74	49	35	58	*
Holt and Howland[2]	950	176	168	93	263	238
B. C. H.	109	24	38	2	29	14
Totals	2187	584	352	253	557	...

* Not stated.

When the signs have once become manifest, it is comparatively uncommon during child-

hood to find evidence of an extending process in the lungs. In the early days of the disease, however, the localization and extent of the consolidation may be difficult to determine; indeed, in certain cases, the physical signs may not be evident much before the time of crisis. Very rarely they may not be evident until crisis has actually occurred (Dunlop). It is to be remembered that in general the earliest reliable physical sign of solidification is distant or diminished breathing over the affected area, and that in the earlier years of life the left apex, rather than the right, presents physiological diminution in resonance.

In our cases, the x-ray was employed as a routine aid to diagnosis, and as a check on the physical signs in determining the extent of the pathology. Except as a means to diagnosticate fluid, however, it is less valuable here, than in bronchopneumonia, where the signs are not so outspoken, and where it may detect small patches of solidification that are not demonstrable by physical examination. In lobar pneumonia, the x-ray commonly shows the affected portion of lung as a dense, localized, and well defined shadow.

Duration of the Disease. In 62 cases who recovered in which the date of onset could be clearly determined, we found the duration of the disease, as measured by the febrile period, to be as follows:

Duration in Days	No. of Cases
4	6
5	2
6	14
7	10
8	9
9	9
10	4
11	4
More than 11	4
Total	62

In four cases the febrile period exceeded eleven days, although no complications could be discovered.

Generally speaking, the duration of the fever is commonest for a period of from five to nine days. The physical signs over the affected area may persist for two weeks or more after defervescence but, as a rule, they rapidly disappear following the crisis.

Crisis. A typical crisis occurred in 43 of our 109 cases, or, approximately, 40 per cent. Ten other cases showed a protracted crisis, the temperature taking 36 to 48 hours to reach a normal level, though maintaining a constant downward trend. In thirty-five cases, or 32.4 per cent., the drop was by lysis. Henoch[11] gives the incidence of the latter type of curve in only 10.6 per cent.; Schlesinger,[7] 12 per cent. A purely ephemeral temperature rise, sometimes of two or three degrees, in the first day or two after crisis, has been repeatedly observed and is frequently mentioned in the literature. It has no untoward significance.

Leucocytosis. White blood counts are recorded on ninety-one of the 109 cases. The degrees of leucocytosis and the mortality for each degree are shown in Table III.

Table III.

White Blood Count and Mortality in Lobar Pneumonia.

White Blood Count	Recovered Cases	Fatal Cases	Total Cases
Below 10,000.....	2	0	2
10,001 to 20,000..	30	1	31
20,001 to 30,000..	33	1	34
30,001 to 40,000..	14	1	15
40,001 to 50,000..	6	1	7
More than 50,000	1	1	2
Totals	86	5	91

While in lobar pneumonia of adults the degree of leucocytosis is of notable prognostic significance, in children, in whom the disease is, as a rule, much milder, it appears to be of but little value in this respect. Of course, the presence of a continued fever with leucocytosis suggests a complication. The figures of Koplik[6] are in conformity with our observations.

Prominent Symptoms. At whatever age, the onset of lobar pneumonia is commonly abrupt and seldom seems to bear any relation to a pre-existing disease. In only ten of our cases was there evidence of any antecedent disorder, *i.e.*, rachitis with notable thoracic deformity, four cases; and old pulmonary tuberculosis, tuberculous peritonitis, acute nephritis, chronic otitis media, draining mastoid and tonsillectomy, each one. In the remaining seventy-three cases in which a reliable history was obtained, the disease appears to have been primary.

The most common symptoms, as mentioned in eighty-three available histories, are recorded in order of frequency, in Table IV.

Cough, while it heads the list in frequency, may be an insignificant symptom; and its presence is perhaps more often discovered from questioning the parent than from any volunteered information. It is seldom a marked early symptom. As a rule, the cough is much less

TABLE IV.

PROMINENT SYMPTOMS IN LOBAR PENUMONIA FROM 83 HISTORIES.

SYMPTOMS	No. CASES	PER CENT. OF INCIDENCE
Cough	53	64
Pain	52	62.7
Vomiting	48	57.8
Fever	36	43.2
Chill or chilliness	26	31.3
Headache	24	28.9
Diarrhea	6	7.2
Sore throat	4	4.8

troublesome than with bronchopneumonia, practically always without expectoration, and it is often overshadowed by other symptoms more striking.

Pain is very common and, as a rule, a very early symptom. It is often referred to the abdomen and in the presence of fever and vomiting, especially if associated with the slow development of physical signs, may take one afield in the search for an acute abdominal condition.

Vomiting is typically an early manifestation. In many cases it was the initial symptom noted. With the development of the signs of frank consolidation it usually disappears, and it is seldom seen after admission to the hospital except as it may result from medication.

Fever in varying degree is nearly always present, but is not always noted by the parent. After admission to the hospital, it usually conforms to the type of curve generally seen with this disease.

Chill. Chilly sensations are not uncommon early in the disease. Between these and a true rigor the history does not always differentiate. According to Comby,[4] an initial rigor occurs in less than ten per cent. of lobar pneumonias in children. It may be said with certainty that it is not very common.

Headache, when present, is usually an early symptom. It may be toxic in origin, or associated with local involvement of the upper air passages. Especially, if with a little stiffness of the neck but no other suggestion of meningitis, it should lead to a suspicion of otitis media.

Sore Throat is generally a subjective symptom, and not common. If cough is marked, there may be a general mild reddening of the mucous membrane.

Malaise, nausea, weakness, irritability, "dopeyness," dizziness, coryza, convulsions and dyspnoea are rarely mentioned. While rapid respiration in the presence of fever and elevated pulse is one of the reliable early signs of pneumonia, yet in children with the lobar form, the breathing is rarely attended by much difficulty.

Cyanosis. In only ten of the 109 cases (9.2 per cent.) is the presence of cyanosis noted. In these ten cases it was recorded as slight in seven, as moderate in one, as marked in one, and in one the degree is not mentioned. The one case exhibiting marked cyanosis died.

COMPLICATIONS.

Empyema was the most frequent and most important complication. It occurred in six cases (5.5 per cent.) all of whom showed pneumococcus in the pus. This is not a higher percentage, however, than occurs with lobar pneumonia in adults. Gossage,[12] in 759 cases of lobar pneumonia in children, found empyema to follow the disease in about 12 per cent. In general, children are apparently more liable to this complication than adults. All of our six cases were operated upon and recovered.

Otitis Media occurred in only five of our cases (4.6 per cent). These figures are very low as compared with others published. In pneumonia among children an examination of the ears should be a routine procedure.

Diphtheria. This was rather a coincident disease than a complication. It occurred five times (4.6). Two of the deaths in our series followed laryngeal diphtheria. *Sterile pleural effusion* was diagnosticated three times (2.25 per cent.). *Hydropericardium* was coexistent with the pleural effusion in one patient. *Mumps* and *scarlet fever* occurred as sequelae to the pneumonia in two instances each. *Acute cervical adenitis* developed once. *Rheumatic fever,* simultaneous with the pneumonia, was once met. The patient recovered.

Recurrence of Pneumonia. One child has twice appeared in our wards, each time with lobar pneumonia involving the left lower lobe. The type of pneumococcus differed in the two attacks. He was well at the time of the second discharge.

BRONCHOPNEUMONIA—99 CASES.

The age incidence and mortality have been shown in Table I.

Distribution. Bronchopneumonia is commonly bilateral in distribution, and more common in the lower lobes than in the upper. In Dunlop's[5] series of 353 cases in children, both lungs were

involved in 182 cases, the right lung alone in 83 cases and the left lung alone in 72 cases; the localization is not given in 16 cases. In the present series the disease showed bilateral distribution in 73 cases; it was confined to the right lung in nine, and to the left lung in eight; in nine cases, the distribution is not stated. In not a few cases, the striking feature is the migratory or evanescent character of the signs. One may find all the signs of solidification in a given area at one time, and a few hours later, that area may be clear and the signs evident elsewhere. Such instability of physical findings contrasts sharply with the findings in lobar pneumonia. The x-ray has been regularly employed and is of great aid in establishing the extent and degree of the pathology.

Duration of the Disease. We have found it difficult to establish figures on this point. The disease is so frequently secondary to other abnormal conditions, and develops, as a rule, so insidiously, that in most instances, it is impossible to determine the time of its inception. Calculations can only be based upon the duration of the febrile period in the hospital. The figures are shown in Table V.

TABLE V.

DURATION OF THE FEBRILE PERIOD OF BRONCHOPNEUMONIA IN THE HOSPITAL RECOVERED CASES.

DURATION OF FEVER IN DAYS	NO. OF CASES
7 days or less	24
7 to 14 days	16
14 to 21 days	5
21 to 28 days	1
More than 28 days	3

The shortest duration of fever after admission was one day; the longest, forty days. Many cases did not enter the hospital before the second or even third week of febrile symptoms. The type of temperature curve is much more irregular than for lobar pneumonia, and the fall to normal is by lysis in nearly all cases. Two cases having otherwise all the characteristics of bronchopneumonia showed an abrupt temperature drop. According to Dunlop,[5] a crisis is more common if the bronchopneumonia be primary. He found it under these circumstances thirteen times in 120 cases.

Leucocytosis. White blood counts were recorded in seventy-six cases. The degree of leucocytosis in relation to mortality is shown in Table VI.

As with lobar pneumonia, the degree of leucocytosis is of little value as an aid to prognosis in children.

TABLE VI.

LEUCOCYTOSIS IN RELATION TO MORTALITY IN BRONCHOPNEUMONIA.

WHITE BLOOD COUNT	RECOVERED	DIED	TOTAL CASES
Below 10,000	10	4	14
10,001 to 20,000	25	8	33
20,001 to 30,000	11	6	17
30,001 to 40,000	1	1	2
40,001 to 50,000	3	2	5
More than 50,000	0	5	5
TOTALS	50	26	76

Symptoms. These are typically gradual in development, and rarely reach their full intensity at the outset of the disease. If the disease be primary, however, there is sometimes a rapidly rising fever, with a cough, and greatly accelerated respiration. Vomiting, again, is a very prominent symptom. If there be antecedent respiratory infection, as is common, with the advent of pneumonia the patient appears sicker, the fever higher, the respiratory rate increasingly elevated, and the cough aggravated. Sharp pleural pain is much less common than with lobar pneumonia.

Cyanosis is at once more common and more marked than with lobar pneumonia in children. In our series it was present in 27.2 per cent. of bronchopneumonias; nearly three times as common as in the lobar. Any considerable degree of cyanosis is of bad prognostic significance in these cases. Thus, in six cases with cyanosis characterized as "slight," there were no deaths; the one case with "moderate" cyanosis died; in seven cases with "marked" cyanosis, six died; in five cases with "extreme" cyanosis, four died. In eight cases with cyanosis, the degree is unstated; among these there were five deaths.

Antecedent Diseases. In a very large per centage of our cases, bronchopneumonia was secondary to other diseases, in particular, those involving the upper respiratory passages. Bronchopneumonia as a primary disease, is, indeed, a comparative rarity after the period of infancy. Thus of 120 primary bronchopneumonias, Dunlop[5] found that ninety-two fell within this period of life. We were able to obtain sixty-two adequate histories, and in these cases the disease was secondary in fifty-three cases, or a little over 84 per cent. Ordinary colds, with or without bronchitis, preceded the pneumonia in ten cases; pertussis in eight, measles in six, chronic cough in three, tonsillitis in two, acute laryngitis, acute otitis media, mumps, and a tonsillectomy, each once. Marked rickets with thoracic deformity, was present in

nine cases, spasmophilia in three cases, chronic rheumatic hearts in two cases, and multiple abscesses, erysipelas, syphilis and furunculosis and typhoid fever, each once. In one case, there was the question of inhalation of a foreign body, and in one case tuberculosis was probably present.

COMPLICATIONS.

Empyema occurred in five cases, four of whom died. One case showed bilateral pyothorax. A sterile pleural effusion was encountered twice. *Otitis media* occurred thirteen times (13.7 per cent.), indicating that it is a common complication. *Acute fibrinous pericarditis* was once encountered. Other occasional complications have been noted; *stomatitis* and *laryngitis* have each occurred twice; conjunctivitis, pustular dermatitis, tonsillitis, abscess of the buttock, impetigo contagiosa have each been seen once. *Diphtheria* followed the pneumonia in three cases. In one fatal case, a persistent thymus was found at necropsy.

Prognosis. Something has already been said concerning the mortality from bronchopneumonia in infancy and childhood. Dunlop, in an excellent clinical analysis of 356 cases, has developed the following general dicta as regards prognosis:

1. The younger the child, the worse the prognosis.

2. The greater the extent of the lung involvement, the higher the mortality. In 73 per cent. of deaths, both lungs were involved. In our own series, both lungs were involved in 80 per cent. of fatal cases, while in three fatal cases, the distribution is not stated.

3. Bronchopneumonia, following measles, pertussis, and diphtheria, has a high mortality.

4. The previous state of health is important (and, indeed, the most casual observer cannot but be struck with the ill-nourished, ill-cared-for and abjectly wretched condition of many of the small victims of this disease).

5. Bronchopneumonia, in the rachitic, is of notable severity. Thirty-four of Dunlop's deaths showed a preëxistent severe rickets, and seven, or 20 per cent., of our own cases.

6. The presence of diarrhoea is a bad sign.

7. Temperature exceeding 105 is to be viewed with alarm. It must be said that hyperpyrexia occurred in only four fatal cases in our series. The writer cannot establish, to his satisfaction, any connection between the temperature curve and the outcome of the disease. Dunlop's statements are quoted because they seem to be the result of careful observation on an extended series of cases.

Recurrent Attacks of Pneumonia. One patient was twice admitted within one year to the service, suffering from bronchopneumonia, and recovered.

SUMMARY.

During a period of two years, 208 cases of lobar and bronchopneumonia in patients of 12 years of age, or younger, have been admitted to the Pneumonia Service of the Boston City Hospital, of whom 109 were of the lobar and 99 of the lobular type.

The total death rate in the lobar pneumonias was 4.6 per cent., but in uncomplicated cases, it was only 1.9 per cent.

The total death rate in bronchopneumonias was 35.1 per cent.; 74.3 per cent. of these deaths were in patients two years of age or younger.

The clinical behavior of both groups parallels in general that recorded by other observers.

REFERENCES.

1 Pisek and Pease: Am. Jour. Med. Soc., 1916, cli, 14.
2 Holt and Howland: Dis. Infancy and Childhood, 1917, Sect. Pneumonia.
3 Morse: Arch. of Ped., September, 1904.
4 Comby: Traité des mal. de l'enfance, Grancher, 1904, iii, 399. (Quoted by Griffith: Dis. of Infants and Children, 1920, ii, 48.)
5 Dunlop: Brit. Med. Jour., 1908, ii, 367.
6 Koplik: Boston Medical and Surgical Journal, 1905, cliii, 741.
7 Schlesinger: Arch. f. Kinderh., 1897, xxii, 281. (Quoted by Griffith, *loc. cit.*, p. 85.)
8 Taylor: Rep. Soc. Study. of Dis. in Children (Brit.), 1907, vii, 203.
9 Henoch: Lectures on the Diseases of Children, N. Y., 1882, 156.
10 Barthez and Sanné: Traité des mal. de l'enfance, 1884, i, 712. (Quoted by Griffith, *loc. cit.*, ii, p. 69.)
11 Henoch: Vorlesung u. Kinderh., 1895, 370. (Quoted by Griffith, *loc. cit.*, p. 72.)
12 Gossage: Proc. Royal Soc. Med., 1907-1908, Med. Sect., 63. (Quoted by Griffith, *loc. cit.*, p. 83.)

ECZEMA IN THE BREAST FED BABY, AND PROTEIN SENSITIZATION.

BY EDWARD SCOTT O'KEEFE, M.D., BOSTON.

[From the Children's Medical Service of the Massachusetts General Hospital.]

ECZEMA in the breast fed baby has always been a difficult problem, and in a certain percentage of cases will remain so for some time to come. With these little ones, external measures are similar to those used in the older patients except for the restraint from scratching which is necessitated here. The other therapeutic avenue of approach, that is, the dietary, has not seemed a very hopeful one. In the bottle fed, and in older children, there has always seemed to be an opportunity to improve, or at least to change the diet. On the other hand,

the dictum that breast milk is the best food for the baby has seemed to discourage attempts at dietary therapy in the case of the nursling.

Most text-books recommend such measures as a change in the interval of nursing, or the giving of water or lime water before nursing. The result accomplished is frequently to diminish the amount of breast milk ingested. A common mistake in treating these infants is to take them off the breast entirely. Such a procedure has obvious disadvantages as far as the child's general health is concerned, and rarely results in an improvement of the eczema.

The problem is often rendered more obscure by the apparent complete agreement of the breast milk with the infant's digestion. Many of the infants are having satisfactory movements, normal gains in weight and are without gastric symptoms.

In the older children with eczema, fats, sugars, cereals, acid fruits, etc., according to the fancy or prejudice of the physician, are omitted from the child's diet. This is usually done upon no very well established grounds. In other cases, the diet is regulated in order that it may be suitable for the child's age and needs. The latter method is a rational one, and often productive of an improvement or cure of the eczema. In the breast fed, however, we have what is admittedly the best food for the infant. The question arises whether or not that food, in the case of the eczematous nursling, contains a deleterious element, such as a foreign protein.

Upon this question the cases here reported seem to throw some light. They were treated in a sub-clinic of the Children's Medical Department of the Massachusetts General Hospital, in conjunction with the Dermatological Department of that institution. These cases have all been diagnosed as eczema, at the skin clinic, and there have received local treatment.

I have selected from the general eczema clinic forty-one consecutive cases which were exclusively breast fed. Care was taken to ascertain, in each case, whether or not cow's milk or egg had ever been given to the infant, especial inquiry being made regarding the first few days before the breast milk was fully established.

Skin tests were done on these cases according to the usual method of linear scarification. A commercial protein was used with tenth normal sodium hydrate as a solvent. Only the cases which gave a definite wheal, with redness, were called positive. Doubtful reactions were repeated at a later date, and unless a definite reaction was then obtained, have been called negative in this series. A table of the results of the skin tests follows:

TABLE SHOWING RESULTS OF CUTANEOUS TESTS UPON THE INFANTS, PLUS INDICATING SENSITIZATION.

	Beef	Corn	Casein	Egg	Lactalbumin	Wheat	Cod	Pork	Oats	Tomato	Human Milk	Potato	Barley	Coffee	Haddock	Onion	Tea	Cocoa
1			0	0	0													
2			0	0	0													
3			0	0	0	0						0						
4			0	0	0													
5			0	0	0													
6	0	0	0	0	0	0	0	0	0	0	0	0	0					
7			0	0	0													
8			0	0	0	0		0	0			0						
9			0	0	0													
10			0	0	0													
11			0	0	0	0												
12			0	0	0	0		0				0						
13			0	0	0													
14			0	0	0	0						0						
15			0	#	0			0										
16			0	#		0												
17			0	#	0													
18			0	#	0													
19	0	0	#	#	0													
20			#	#	#													
21			#	#	#	0		0		0		0						
22	0	0	0	#	0			0										
23			0	#	0		#											
24	0		#	#	#	#		0				0	0	0	0	0	0	0
25			0	0	#							0						
26			#	0	0	0				0								
27			#	0	0													
28			#	0	#	0						0						
29			#	#	0	0						0						
30			0	0	0													
31			0	#	0													
32			0	0	#	0	#											
33			#	0	#								0					
34			0	#	#	0						0						
35			0	#	0	0						0						
36			0	0	0	0						0						
37			#	0	0													
38			0	0	#	0		0				0						
39			#	#	0	0		0				0						
40			#	#	#	0		0				0						
41			0	#	0	0		0				0						
Total	0	0	12	17	10	1	0	0	2		0	0	0	0	0	0	0	0

In the eczema of older children, milk and egg proteins have given the most frequent responses to cutaneous tests. These proteins were consequently used in every case, as well as other proteins, if opportunity was afforded or if negative reactions were obtained in this first group. In out-patient clinics, there is often difficulty in following cases for any length of time. Many parents brought the child but once, of their own accord, and, when induced

to come later, stated that they had not returned owing to the improvement of the child's condition. There were others who became discouraged owing to the persistence of the condition. However, the most severe cases usually were under observation for a sufficient length of time to show whether the treatment instituted was beneficial of ineffectual.

Of the forty-one cases in the table, twenty-five babies, or about 61%, showed a positive reaction to some one or more of the proteins used. Seventeen, or 41% showed a positive reaction to one of the egg proteins. Sixteen cases, or 39%, showed a positive reaction to one of the cow's milk proteins. Oats appeared twice and wheat once. In each case of sensitization to the cereal proteins, egg or milk proteins also gave a positive response. No sensitized case among these breast fed infants failed to show a positive response to either egg or milk proteins, and about 20% of these sensitized cases showed a positive response to both.

Sensitization to food proteins can occur in the breast fed, in no other way apparently, than through foreign proteins ingested in the breast milk, as suggested in a recent article by the author.* Acting upon this theory, it has been a routine procedure to omit, or at least to limit, in the maternal diet, the food or foods to which the nursling shows a cutaneous reaction. Whenever eggs and milk were omitted or limited in the maternal diet, cod liver oil and green vegetables were prescribed for the mother, in order that no vitamine deficiency should arise in the breast milk.

These cases have at all times received external treatment in the skin department of the hospital. A combination of the external treatment with dietary study and regulation is the ideal arrangement for the management of this class of cases, as well as for the eczema in the older children.

An analysis of the results of treatment shows that seventeen of the forty-one cases have been relieved of their condition entirely. In fourteen of these cases the time elapsing between the beginning of treatment and the clearing of the skin could be definitely set. The average time under treatment for this group of fourteen was one and two-thirds months. Nine cases showed definite improvement after an average of one and seven-tenths months' treatment. Four cases did not seem to be improved after an average of one and one-half months' treatment. Seven cases came only once, and their progress has not been determined. The remaining four cases came too recently under treatment to allow conclusions to be drawn regarding their course.

* BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxxiii, No. 20, Nov. 11, 1920.

CONCLUSIONS.

A large percentage of breast fed infants suffering from eczema show a positive cutaneous reaction to food proteins. Foreign proteins occurring in the breast milk are the most probable means of such sensitization in this group of cases.

Egg and cow's milk proteins give the most frequent positive skin reactions.

Apparent cure in about 40% of these cases, and definite improvement in about 20% more of the cases, has followed the omission or limitation in the maternal diet of one or more food proteins to which the infant is sensitive.

SIGNIFICANT REACTIONS OF THE ARTERIAL TENSION. MANIFESTATIONS OF THE ANGIO-KINETIC ENERGY CLINICALLY OBSERVED AND INTERPRETED.

BY CLAËS JULIUS ENEBUSKE, BOSTON.

(Concluded from page 181)

Section IX. Physiological Mechanism of the Biochemic Angio-kinetic Toxaemia Reaction.

Granted that toxic influence is removed, why is the arterial tension from opposite aberrations altered to always and continuously the same level of 150 m.m. Hg? The representations, in previous chapters, of the angio-kinetic activity in the circulatory periphery facilitate the answer. The normal adjustment of the cardio-vascular, neuro-muscular mechanism, under physiological conditions, is expressed at the radialis by a maximal tension exceeding 140 m.m., not exceeding 150 m.m. Hg. Toxic afferent indirect, or direct excitation, causes, in certain individuals, a sustained pressor-action, under certain circumstances, and in others, depressor action. When the author's biochemic angio-kinetic toxaemia reaction is positive, the mechanism consists in an automatic readjustment to normal coördination of the vasomotor neurous and arteriolar muscle-cells, because the toxic excitation which, by direct or indirect in-

fluence upon the vessel walls, produced the anomaly, has ceased to be effective.

Section X. Nature of the Toxic Influence which Directly or Indirectly Causes the Anomalous Arterial Tension.

Toxaemia, as a pathogenic conception and a pathochemic fact, has a deepening and expanding influence upon the observations of medical investigators in the present period of development. Three large groups of toxaemias concern investigators and practitioners at present:

A. Due to poisons introduced into the body from the exterior;

B. Due to products of biological processes in proteins of parasites invading the body, particularly schizomycetic proteins;

C. Due to toxic substances produced by the body.

In the line of arguments pursued on previous pages, and in the casuistic material observed, the two first mentioned classes of toxic matter have been excluded as cause of the toxaemia under consideration. After such exclusion, there remains only toxic influence through substances manufactured by the body as cause of the dysarteriotonia in the cases under consideration.

Here the field of investigation opens for direct evidence through blood-chemistry and urine-chemistry. On entering this field of investigation, it must be recognized at the outset that the radialis maximum tension is a very sensitive indicator of chemical alterations in the blood. It is well known, the dilator and constrictor muscles of the pupil are more sensitive to the presence of, for instance, atropine in a solution than any analytical reagent in vitro. The chemical pressor and depressor reactions at the radialis artery belong to the same category of biological phenomena as the chemical dilator and constrictor reactions of the pupil. They are objective phenomena and constitute an autonomous field of scientific investigation. In view of the vastness, and complexity, and importance of the subject, no attempt will be made in this chapter to introduce material of direct observations from the field of blood chemistry and urine-chemistry, and to prove their relation to the angio-kinetic toxaemia reaction. That must be referred to future developments through analytical methods. It goes without saying that the radialis maximum observations and the toxaemia reaction do not give information regarding the particular composition of toxaemia existing in a given case. But the angio-kinetic phenomena furnish clinically available, highly sensitive indications of the presence in the blood of chemical alterations beyond limits of physiological variation, even in cases where these cannot be identified in the light of present understanding.

XII. PATHOLOGIC ANGIO-KINETIC HYDROCEPHALOTONIA REACTIONS.

1. *Psychic Processes and Biochemic Reactions.* In arguing "ab juvantibus" as auxiliary to "per exclusionem," in Chapter XI, Section 8B, toxaemia is proven to be the cause of dysarteriotonia in the cases considered, as against psychic influence as not the necessary or immediate cause. This conclusion must not be misunderstood as implying exclusion of psychic processes from every influence upon the angio-kinetic states (cnfr. Author's article, Boston Medical and Surgical Journal, March 6, 1917). On the contrary, certain conditions of consciousness, more particularly strong emotions, have a perceivable and measurable influence upon the angio-kinetic manifestations. As illustration of this fact, may be mentioned a few observations by the author (Säter Hospital for Insane, Sweden, 1915). (a) A middle-aged man, during period of remission of manic-depressive disease (manic state preceding), whose radialis maximum tension had been measured on successive days and found normal, for several weeks. One afternoon, shortly after measurement of his radialis tension had been made, this man was promised a pair of new trousers. At the good news of it, his face shone of satisfaction. Renewed measurement, then made, revealed an increase of 30 m.m. of his radialis maximum tension (increase from 150 to 180 m.m. Hg). A few hours later, renewed measurement found the tension again reduced to 150 m.m. Hg: the emotional reaction had subsided. (b) A middle-aged man, suffering from delusional insanity, occupying a single room, entered suddenly an adjoining ward, occupied by men in bed, most of them cases of praecox, whose radialis, at the time, was sustained at a maximum tension of 150 m.m. Hg., under the influence of positive reaction to treatment. In a state of rage, with large gestures, face contorted by the strength of his feeling, with loud voice and swearing phrases, the delusional man deprecated the state of af-

fairs in the house, with "death's-owls" on the floor and on the walls to which he pointed, threatening with his fists. The patients in the beds, most of them, reacted by more or less excitement, apprehension, fear, and their radialis maximum tension, when measured, revealed pressor reaction, varying in the different cases, from 10 m.m. to 70 m.m. Hg, above the previously existing normal tension value of 150 m.m. Hg. A few hours later, most of them had regained the normal tension level; the emotional reaction had subsided.

Observations of the same kind as mentioned belong to the every day experiences in hospitals for insane, when radialis-arteriotonometric observations are made. Judging from these and innumerable similar observations, it would appear as if such emotional reactions of the arterial tension were ephemerous, soon vanishing, unless the stimuli which evoked the emotion (afferent from environment or intrapsychic) persist continuously, or unless the reaction is sustained by simultaneously existing toxaemia. Indeed, from observations upon animals under experimental conditions, recorded in the physiological literature, it will appear as if the influence of emotion upon the "blood pressure" were executed, at least to a greater or lesser extent, by means of chemical transformations, which alter the chemotropic properties of the fluids of the body (confr. Cannon[30] and other authors).

By means of chemical processes, such as alluded to and others probably as yet incompletely understood, in persons possessing lower grade of interneuronic coördination at the time of operation of these processes, disturbances of the angio-kinetic manifestations are initiated or sustained. In this connection it is necessary to briefly consider the very important relation which exists between the radialis maximum tension and the intracranial pressure.

2. *Radialis Maximum Tension and Intracranial Pressure.* In the psychoneurological groups of morbidity, as far as the author has observed hitherto, vascular hypertonia is always associated with increased intracranial pressure in all states of continuous hypertonia when the basic radialis maximum tension value exceeds 170 m.m. Hg, even though the lower degrees of increased intracranial pressure may escape recognition by means of the lumbar manometer unless great precision of observation is secured. The author has reached this conclusion by comparative observations of the radialis maximum tension basic value before and after withdrawal of spinal fluid through lumbar puncture. In the following Table IV, facts are summarized which illustrate the nature of the author's arguments in this exceedingly important question. All the cases on the Table IV were observed in the Boston Dispensary, except No. 63. The withdrawal of 10 cc. spinal fluid was made in the Nerve and Mental Department of the Boston Dispensary on the dates indicated on the Table IV, and the measurement of the radialis maximum tension was performed half an hour before and after the withdrawal of the fluid.

Case No. 63 was observed by the author in the Boston Psychopathic Hospital in February, 1919, at the instance of the late Dr. Southard. In pursuance of the author's examination, as practised for years, he measured the radialis maximum tension on successive days. To Dr. Lowrey, Chief Medical Officer, who performed lumbar puncture in this case, on February 10, 1919, is due the information that the amount of spinal fluid withdrawn on that occasion was 8 cc. Following are a few measurements of radialis maximum tension made by the author before and after lumbar puncture in this case:

		Mm. Hg.	
		Right	Left
Feb. 10	before lumbar puncture	220	200
Feb. 11	after lumbar puncture..	170	150
Feb. 12	after lumbar puncture..	190	190
Feb. 13	after lumbar puncture..	230	220

Incidentally the following measurements of the "blood pressure" by means of the "cuff-upper arm compression method" were made:

		Mm. Hg.
Feb. 10	before lumbar puncture.....	122
Feb. 12	after lumbar puncture	120

It is well known, and self-evident, withdrawal of spinal fluid is immediately followed by a drop of the intracranial pressure, directly observable on a manometer connected with the lumbar needle. The author has observed that a decrease in radialis maximum tension follows the drop in the intracranial pressure closely, with exception of special cases (ex. No. 62, Table IV, reflex-angioplegia). In about one-half hour (differing in cases) after lumbar puncture, it has reached its lowest level under the circumstances, after which it soon begins to increase again, at least in the psychoneurological groups of morbidity, and more particularly in psychotic cases, hypertonic states. The

TABLE IV.

No.	Date	Radialis Maximum Tension Rt. m.m. Hg. Before	After	Lt. m.m. Hg. Before	After	Amount of reduction after lumbar puncture m.m. Hg. Rt.	Lt.	Name	Age	Occupation	Diagnosis
56	8, 13, '20	270	250	270	250	20	20	B. A.	46 yrs.	Wife	Facial paralysis
57	7, 20, '20	240	230	210	190	10	20	J. P.	33 yrs.	Carpenter	Traumatic neurosis
58	6, 22, '20	230	190	230	190	40	40	W. C.	46 yrs.	Factory worker	Tabes
59	2, 10, '20	230	190	180	160	40	20	N. G.	47 yrs.	Laborer	Left hemiparesis
60	7, 2, '20	190	150	190	150	40	40	E. G.	57 yrs.	Tailor	Undiagnosed
61	2, 11, '20	200	150			50		N. Z.	28 yrs.	Female, at home	P'l'm'y tuberculosis
62	5, 14, '20	150	150			0		W. W.	56 yrs.	Laborer	Parkinson's disease
63		220	170	200	150	50	50	W. G.	17 yrs.	Clerk	Psychopathosis

author assumes that simultaneously with the increase in radialis maximum tension, there is an increase in intracranial pressure and that the latter may precede in time, and furnish the immediate afferent stimulation, which produces the vascular pressor effect, to greater or less extent, at least in the psychoneurological groups of morbidity. Table IV shows at a glance the kind of facts upon which the author bases this assumption.

3. *Technical Methods of Precision and Their Interpretation.* It must not be expected that the differences in intracranial pressure which are here considered shall be recognized with the manometer unless technical manner of procedure be adopted which give due regard to the physiological mechanisms involved. The author has witnessed several instances where arterial hypertension even at the high levels, at which pathological changes in the optic disc are the rule sooner than the exception, has coexisted with a "blood pressure," in the clinical sense, which was considered normal.

4. *Approximate Estimate of Increased Intracranial Pressure.* It must not be expected that a simple and constant ratio shall be found to govern the changes in radialis maximum tension and the intracranial pressure. Table IV shows that a withdrawal of 10 cc. spinal fluid may, in one instance, cause a reduction of 10 m.m Hg. in the radialis maximum tension; in another instance, a reduction of 50 m.m. Hg.; in still other instances, any of the intervening values, or even no measurable alteration (ex. in reflex-angioplegia). But although there is not a fixed coefficient which measures the relation of the intracranial pressure to the radialis maximum tension, there is a sliding scale of ratio which enables the observer to approximately estimate the intracranial hypertension. This can be accomplished by observing the basic radialis maximum tension values and their reaction to afferentia of different kinds, and particularly by observing their behavior under the author's biochemic angio-kinetic toxaemia reaction and the angio-kinetic dyshydrocephalotonia reactions, *i.e.*, the amount of reduction of radialis maximum tension after withdrawal of a measured quantity of spinal fluid, and of the rate of renewed increase in radialis maximum tension subsequent to maximum reduction.

The observations of the author in this regard have uncovered interesting theoretic connections, and they have proven useful in a practical sense, but it would be too early to formulate diagnostic or prognostic types of values. Rules must be derived from mass-statistics, otherwise confusion results instead of lucidity.

5. *Normal Value of Intracranial Pressure.* There is only one rule which is borne up by the whole of the author's experience with this subject. In the literature, opinions differ as to the value of the normal intracranial pressure: is it 100-120 m.m. H_2O., or 50-100 m.m. H_2O.?

My conclusion, from the whole of my observation in this field since 1904, is this: the intracranial pressure is normal—exception made for feeble-minded persons and cases of reflex angioplegia—when it coexists with spontaneously stable radialis maximum tension exceeding 140 m.m., not exceeding 150 m.m. Hg. (cnf. Chapter IV). The following, by rule, may be added with a shade of lesser certitude: When, in a middle-weight adult man, the radialis maximum tension is found to be continuously hypertonic at a level of 180-200 m.m. Hg., there is in his intracranio-vertebral spaces approximately 10 cc. cerebrospinal fluid in excess of the upper limit of physiological variation, at least in cases belonging to the psychoneurological groups of morbidity.

6. *Neutral Salts of One-Atomic Bases.* There is one more reaction which will be here mentioned, because of its immediate practical value. That is the relation of neutral salts of one-

atomic bases to the radialis maximum tension. As already pointed out in a previous chapter (V), and in earlier publication, when medication with the neutral salts of one-atomic bases is continued for weeks, or months, in succession, the radialis maximum tension attains an artificial stabilization, at different tension levels, 190-230 m.m. Hg. This was explained (l.c.), as caused by increased salt-tension (hypertonicity) in the blood to which the vasomotor mechanism responds with hypertension of different degree under different conditions, as alluded to. In cases under such treatment, the author has observed that if before the intake is begun, the radialis maximum tension was very high, more than 250 m.m. and changeable (220-270 m.m. Hg.), after the increased salt tension is established after 8-10 days or more, under daily intake of equal amount of the salt, the radialis maximum tension gets stabilized at a lower tension level, for instance, 230, 220 or 210 m.m. If, after a certain time of such continued medication, the salt intake is entirely stopped and sufficient time is allowed for the salt-surplus in the blood and tissues to be eliminated, then one of two results may be obtained. Either the radialis maximum tension returns to its former higher level and changeability (220-270 m.m.), or the tension is found to be reduced to lower level. The former is generally the result in adults in hospitals for insane (psychopaths, etc.); the latter is noticed in minor psychoneurological ailments that are relieved under, for instance, bromide treatment. It seems probable that in the former class of cases, during the period of hypertonicity of the blood, through salt-intake, by operation of osmotic force, the excessive spinal fluid is, to greater or less extent, taken up by the blood, reducing its osmostic hypertonicity and that a state of relatively more or less diminished intracranial pressure is thus established, which, in part at least, accounts for the sedative effect of such medication. When, in such cases, the salt medication is stopped, the increased intracranial pressure is again established, owing to continued toxic irritation of the ependyme (infra. diagr.)

Conversely, in the cases where, after such medication, the radialis maximum tension is reduced to lower levels and remains nearer the normal value, the reduced intracranial pressure has been effectively associated with a neutrophic influence and produced a more or less lasting result. These mechanisms deserve consideration, but are insufficient to explain facts without simultaneous operation of other mechanisms.

7. *Afferent Influence of increased Intracranial Pressure.* From the above discussion and relevant facts, it is apparent that among the mechanisms which, different in different cases, produce angio-kinetic disturbances, the afferent influence of increased intracranial pressure resulting in reflex pressor action and vascular hypertonia, occupies an important place in cases belonging to the psychoneurological groups of morbidity. However, in the cases considered in this paper, there has always been positive result of the author's toxaemia reaction, in a word, toxaemia has always been behind the increased intracranial pressure, sustaining it, even if the author has not proven that toxaemia has initiated it.

8 *A Viscious Psychophysic and Physopsychic Circle.* The author is not desirous of formulating any theory in this connection, nor to argue in favor of any theory previously formulated. His only desire at present is to agree with the reader that the facts presented in this paper give tangible and translucid evidence of the intimate inter-relation of emotional vibrations, toxaemia, and disturbances of intracranial pressure and of the arterial tension.

9. The rate at which increased intracranial pressure is reëstablished after lumbar puncture, can be estimated approximately by observation of the radialis maximum tension and its reactions to the various tests described by the author.

10. *A Neurological Syndrome and Morbid Psychic Reactions.* The practical significance and usability of the author's biochemic angiokinetic toxaemia reaction and also of the angiokinetic dyshydrocephalotonia reaction will undoubtedly be exemplified by the author at future occasion. One point of view will here be held forward. At a spontaneously stable radialis maximum tension (Chapter IV), there is not anomaly of intracranial pressure, and there is not toxaemia. At this fortunate physiological state, there is not mental disease, save apparent exceptions referred to on previous pages. Before outbreak of mental disease, there is a period during which the syndrome is operating, which the author has described in a previous article (BOSTON MEDICAL AND SURGICAL JOURNAL, Aug.

13, 1919), the syndrome of dyshydrocephalotony, dysarteriotony and toxaemia. The radialis-arteriotonometric examinations (Table I-III), the author's toxaemia test (Chapter XI), and the dyshydrocephalotonia test (Table IV) make this syndrome recognizable in ample time before the outbreak of mental disorders (probably years in advance in many cases).

CONCLUSION.

From a scientific point of view and from humanitarian, by virtue of relevant facts presented in this communication, the inference is deigned to be most earnestly considered, that in the future there will be less psychoneurological instability and maladaptation, and lesser occasion for resorting to aristotelic methods in the State,—in the measure as the mighty Norm of Radialis Maximum Tension, and the sublime mechanisms associated with it, shall be sustained as the spontaneous possession of the population; and that this beneficent result is capable of being achieved by means and methods pertaining to the distinctly hippocratic realm of observation and action.

To fully grasp the reality and justification of this prognostication, it is necessary to consider a few more mechanisms and reactions connected with natural immunity which, if circumstances do not prohibit, will be the object of future communications by the author.

LITERATURE.

1-26 As indicated in previous chapters.
27 Hunt, Reid: The Relation of Iodine to the Thyroid Gland. Jour. A. M. A., 1909.
28 Hammarsten, O.: Lehrbuch d. Physiol. Chem., Wiesbaden, 1907.
29 Enebuske, Claës Julius: Orthoarteriotomy. BOSTON MEDICAL AND SURGICAL JOURNAL, Sept. 6, 1917.
30 Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear, and Rage, with References to the Literature on the Subject, 1915.

Clinical Department.

TYPHOID OSTEITIS. WITH REPORT OF A CASE TREATED BY THE CARREL-DAKIN METHOD.

By PHILIP D. WILSON, M.D., BOSTON.

THE occurrence of periostitis and ostitis during or following an attack of typhoid fever, is a fairly well recognized complication of that disease, but a careful search of the literature inspired by a case recently under the writer's observation reveals a surprising scarcity of recent references to the subject. The literature of typhoid spine is, on the other hand, voluminous, although supposedly a much rarer complication. The interest here is accounted for by the controversy as to the nature of the spinal lesion, some, among whom no less an authority than Sir William Osler,[1] holding to the belief that it is purely a functional disease. The articles of Rogers,[2] in 1913, and Carnett,[3] in 1915, have fairly well established, however, that a true spinal lesion exists and that the process is the same in nature, in all probability, as that which attacks the long bones.

Despite the fact that typhoid fever is a disappearing disease, it is not yet extinct, and it seems desirable to draw attention to one of its frequent complications from the viewpoint of modern surgical knowledge.

Historically, it is of interest to know that bone complications of typhoid fever were recognized as early as 1835, as indicated by reports from the French Clinic of Widal de Cassis and Maisonneuve.[4]

That it is a comparatively rare lesion is shown by the following figures:

	Cases of Periostitis	Cases of Typhoid
Dopfer reports	8	927
Fürbringer	5	1,600
Poole T. Brice	9	1,897
Berg	4	1,626
Schultz	8	3,686
Braza	11	575
	45	10,311

This gives an incidence of 00.4% for the entire group. It is only fair to add, however, that most of these figures are old and that the modern laboratory methods of confirming the diagnosis, such as the Widal reaction and blood culture, would probably give a much higher incidence by eliminating a larger number of cases previously included as typhoid. The statistics of Braza are the latest, and cover the period 1897 to 1913, and these yield the much higher incidence of 2%.

On the exact nature of the process there is little reported. The septicaemia character of typhoid fever is well known, and writers have reported the isolation of the organism from practically every tissue, including the bone marrow. Fluss[5] has reported the finding of clumps of the bacilli in the bodies of the vertebrae. The ability of the typhoid organism to produce suppurative lesions has been established with the recovery of pure cultures of Bacillus Typhosus by Richardson,[6] from abscesses in the breast, prostate and testicle. That the bone le-

sions are due to the typhoid bacillus alone, and no other, has been shown many times by the recovery of this organisms inmixed with other bacteria from cultures made at operations and post mortem.

Mallory's work has shown the prominent part played by large mononuclear phagocytic wandering cells (endothelial leucocytes or macrophages), in typhoid lesions elsewhere than the bone. Dr. J. Homer Wright had the kindness to look over some old sections of tissue obtained from a case of typhoid periostitis at operation in 1900. The tissue was obtained at operation and did not include any bone. Microscopic examination showed a stroma infiltrated with masses of polymorphonuclear leucocytes and endothelial leucocytes, many of the latter exhibiting active phagocytosis.

From the similarity of this picture to that seen in certain stages of typhoid lesion elsewhere, it is fair to assume that the process is similar in every way to typhoid lesions elsewhere, and that it originates as part of the general endothelial cell reaction to the presence of the typhoid bacilli. Later, when necrosis occurs, there is a secondary invasion of polymorphonuclears and either resolution or suppuration.

The location of the lesion, usually close to the surface of the cortex, is probably determined by the fact that the blood vessels of the peripheral Haversian systems are smaller than the central ones, and therefore the lodgment of bacterial emboli more easy. Their active development here may bear some relation to the fact that this part of the bone seems less well nourished than other parts.

That the process originates in the bone rather than in the periosteum, is indicated by x-ray descriptions by different writers, most of whom describe a small area of bone destruction near the surface as the earliest appearance of the lesion. This was certainly so in the writer's case, the patellar lesion never progressing beyond this point, and bone destruction also being present in the ulna. It is evident, also, that the term, periostitis, is a misnomer when applied to the process, and that osteitis should have the preference.

That bone lesions may also occur in cases due to one of the paratyphoid groups, is suggested by Jensen and Kock,[7] with the report of a case of involvement of the lower end of the femur which was operated upon and from which was isolated a paratyphoid organism. The symptoms in this case appeared following an attack of supposed typhoid twenty years previous, and which had persisted throughout this period.

Age, apparently, bears no relation in the occurrence of bone complications. Braza states that more males are affected than females, and this is confirmed by Keen's[8] figures. Males, 123 (66.6%); females, 63 (33.3%).

The severity of the attack of typhoid does not seem to be a factor in determining the appearance of osteitis. The lesions are more often single than multiple, according to Braza. As for location, the long bones and ribs are apparently favored. Keen gives the following figures:

Tibia	91
Ribs	40
Femur	22
Ulna	15
Humerus	11
Pelvis	8
Miscellaneous	49

The bone lesions usually appear in the convalescent period of the disease, often in the first few days of normal temperature, although there are cases on record in which the first symptoms only developed months after the termination of the illness. The first and cardinal symptom is always pain, and this may come on so long before the appearance of the objective findings as to give rise to the diagnosis of neuritis or functional pain. It is, however, worse on motion of the affected part. The first sign is always tenderness on pressure, sharply localized. Later, there may be the usual signs of inflammation, such as swelling, local heat and limitation of motion, and fluctuation, if the lesion becomes suppurative.

The x-ray findings[9] do not become positive, often, for several weeks, and then show a small area of decreased density lying in the cortex, near the surface. Later, there is a thickening of the periosteum above, and extension of the process from below, with the formation of a periosteal blister. Keen has aptly described this stage as the "shirt stud" abscess.

The diagnosis of typhoid osteitis offers no difficulty if the symptoms are located in the bones of the extremities. The only difficulty will occur when the proximity of the lesion to a joint focuses the attention there instead of in the bone itself. The patellar lesion in the case reported is an illustration of this danger. It is only when the lesion is located in atypical

places, as in the neighborhood of abdominal organs, that there is much risk of going astray. In such cases, the history of a recent attack of typhoid fever should always afford a guide.

The course of the lesion is subacute and often covers a period of weeks or months, as in the case reported. It more often goes on to resolution than abscess formation. Only two of the eleven cases reported by Braza required surgical interference. From the good results obtained by treatment of spine lesions with early immobilization, it is probable that resolution of the bone lesions elsewhere will be greatly favored by early and complete fixation. If, on the other hand, actual bone necrosis or sequestrum formation has occurred, the treatment must be similar to that of any osteomyelitis; surgical removal of all dead bone, conversion of the cavity into a gutter or trough by removal of overhanging bone edges, thus permitting its obliteration by the overlying soft parts, when disinfection has been obtained.

The gratifying results now obtained by the proper use of the Carrel-Dakin method of chemical sterilization in cases of osteomyelitis suggest that this should also be applied in the surgical treatment of typhoid osteitis.

The chief interest in the case here reported lies in the fact that this method was used, and proved of undoubted value in the treatment of the ulnar lesion. The history of similar cases treated by the old method, is that they were often obstinate and became chronic. It seems fair to attribute the rapid wound disinfection in this case which permitted successful secondary closure at the end of four days to the application of the Carrel-Dakin technique. The patellar lesion represented a very low grade process with bone absorption, but without sequestrum formation. Although drainage was provided, there was never any discharge, and it was unnecessary. This lesion would probably have resolved with proper immobilization, but it seemed fairer to avoid the risk of a second anaesthetic, by exploring it at the same time as the operation on the ulna and the period of convalescence was probably shortened.

The case report follows:

A. F. F., female, aged 31. Occupation, stenographer. First seen, February 18, 1920, through the courtesy of Dr. Lloyd T. Brown.

Patient states that four months previously she developed "influenza," with sudden onset, headache and pains in the muscles, bones and joints. She had cough and a temperature of 104°. She was in bed three weeks without the expected fall of temperature, when her physician began to suspect typhoid, and a Widal test done proved positive. She had considerable cough, with sputum, and there were signs in her chest of pneumonia. Condition was about stationary for two weeks, except that lung signs cleared up. Then she began to feel more sick, and suffered complete deafness for two weeks. After this, she began to improve gradually, the temperature falling to normal and the hearing returning. But pain arose on the inside of the left knee, running up the thigh, and this was made worse by motion of the knee. The pain was intense for two weeks and then gradually lessened until, one week ago, when it began to get worse again. About the time when the knee began to get better, or two and one-half months ago, she noticed pain under the left elbow, and a swelling appeared which was hot and tender, like an abscess. It has continued to bother her ever since, though not growing worse.

Examination—On the extensor surface of the left ulna, one and one-half inches distal to the tip of the olecranon, is a swollen, tender area about two and one-half inches in length. It is fluctuant in the middle, but hard at the edges, and seems connected with the bone. There is no heat or redness. The left knee shows slight enlargement of the infra-patellar fat pad and is quite tender over the anterior part of the lower end of the patella. There is no swelling or evidence of fluid, and motions of the knee are quite free although full extension is painful.

X-ray—On posterior aspect of upper end of ulna, about two inches below tip of olecranon, there is an area of bone destruction surrounded by periosteal proliferation. Over this area the soft tissues are thickened. Knee-joint negative.

The diagnosis of probable typhoid periostitis was made and she was sent to the Massachusetts General Hospital for study and observation. She was admitted February 20th.

The hospital record shows that the urine was negative and cultures from the catheterized specimen sterile. Blood showed leucocytes, 10,800; polymorph., 69%; lymphocytes, 29%; large mononuclears, 1%; eosinophiles, 1 %; Wassermann, negative.

She remained in the hospital five days and expectant treatment of the forearm was advised while the condition of the knee was diagnosed, prepatellar bursitis. Her temperature was normal throughout her stay.

Patient was next seen April 12th, when she came into the office, stating that the arm is more sore and somewhat reddened, and that she is still having pain in the knee. The examination shows the swelling of the arm larger and fluctuant, and it is slightly tender. There is slight puffiness over the left patella, and definite tenderness. X-ray taken at this time

FIG. 1.—Radiograph of forearm taken February 18, 1921. The arrow indicates the thickening periosteum. Directly below this is an area of decreased density in the cortical bone.

FIG. 3.—Radiograph of forearm taken April 12, 1920. Arrow points to sequestrum which was removed at operation.

FIG. 2.—Radiograph of knee taken February 18, 1920, showing appearance of patella normal.

FIG. 4.—Lateral view of patella taken April 20, 1920. Arrow points to area of decreased density.

FIG. 5.—Radiograph of patella taken April 20, 1920. The arrow points to the area of absorption in the patella.

showed a definite cavity below the periosteum of the ulna containing a definite sequestrum, with the periosteum thickened above. In the left patella, there was a small area one-fourth of an inch in diameter, of lessened density near its distal margin. She was admitted to the Deaconness Hospital April 25th for operation.

Operation—April 26, 1920: A three-inch incision was made in the axis of the forearm immediately along the apex of the swelling, on the extensor surface of the ulna. A cavity was opened containing two teaspoonfuls of thin, light greenish pus. A culture was taken. The incision was carried down to the bone, and the periosteum stripped sideways, revealing a definite opening through the periosteal shell into a cavity beneath. The bony roof of this cavity was removed with a gouge and it was seen to be lined with grayish tissue and to contain a thin sliver-like sequestrum lying in a trough-like hollow in the cortex. This was removed and all projecting bits of bone chiselled away, the cavity being converted into a shallow depression. Two No. 4 Dakin tubes were placed in the bottom of the wound and several silk worm-gut sutures were placed, to be tied later.

With a completely new sterile outfit, an incision was made one and one-half inches long, over the mid line of the patella. There was definite edema of the soft parts and thickening of the periosteum at the lower border, where the patellar tendon attached. This was separated down to the bone, a small cavity found in the surface of the patella, about one-fourth inch in diameter, filled with grayish granulation tissue, but no pus. This was curetted out, down to healthy bone. Culture was taken. A small gauze drain was placed in the wound and the latter sutured about it.

The patient showed no reaction following the operation, the temperature not passing 99°. The forearm wound cleaned up rapidly with two hourly instillations of Dakin's solution, and four days after the operation, the tubes were removed and the sutures tied. The drain was removed from the knee wound at the end of twenty-four hours. Both wounds were completely healed by May 7th, and the patient was walking about without pain, and the elbow motions normal. She was seen on May 14th, when she was completely well. All dressings were removed, and she was asked to report only in case of further trouble.

Dr. Francis L. Burnett reports that the specimen consisted of two swabs, and a bit of bone; one of the swabs was taken from the forearm, the other from a lesion on the knee; and the bit of bone was removed from the elbow. Culture tubes of bouillon were inoculated, but only in the tube containing the bone was there any growth apparent. This, on further examination, proved to be a pure culture of Bacillus Typhosus.

REFERENCES.

1 Osler: Johns Hopkins Hosp. Reports, Vol. iv, 1895, 73.
2 Rogers: BOSTON MEDICAL AND SURGICAL JOURNAL, March 6, 1913, p. 348.
3 Carnett: Annals of Surg., April, 1915.
4 Braza: Weiner klin. Woch., No. 48, 1913, 1985.
5 Fluss: Zentralbl. f. Grenzgebiete d. Med. u. Chir., 1905, 8, Bd., S. 645.
6 Richardson: Jour. Boston Soc. Med. Sc., Vol. v, 1900, 116.
7 Jensen and Kock: Deut. med. Woch., No. 47, 1910.
8 Keen: Surg. Complications and Sequels of Typhoid Fever. W. B. Saunders, 1898.
9 Dachtles: Am. Jour. Roent., April, 1914.

LIPOMA OF THE MESENTERY.

BY B. H. ALTON, M.D., WORCESTER, MASS.

Assistant Surgeon to the Memorial Hospital.

THE infrequent occurrence of solid tumors of the mesentery leads me to report this case of lipoma.

CASE 3061—1919. Mrs. M., aged 60, came to me because of constipation and an uncomfortable feeling in the abdomen. She had been married 39 years, and had four children living and well; three died in infancy. She had always been a rather delicate woman, having more or less stomach trouble. An appendectomy was done in 1909. Adhesions about the appendix region were dissected in 1915. Hemorrhoidectomy 18 years ago. Since the last operation, her condition has been fairly good up to September, 1919. She then began to tire easily and have an "all gone" feeling in her abdomen, together with constipation. These symptoms have increased during the past four or five months. Menopause at the age of 45. Slight vaginal discharge during the past year.

A curettage of the cervix and uterus was done. The curettings showed no evidence of malignant disease.

Patient entered hospital in October, 1919. The physical examination revealed a fairly well developed and nourished woman lying comfortably in bed. There was a scar of an old rectus incision on the lower abdomen. A kidney-shaped tumor could be felt over the left kidney extending across the mid-line and downward about five inches. It was slightly movable and tender when a small amount of pressure was used. Vaginal examination was negative.

The urine was straw colored, acid, specific gravity 1014, slight trace of albumen,—sediment showed an occasional leucocyte and many squamous cells. A mild cystitis that cleared up under treatment. Kidneys showed a function test of 45%. The haemoglobin was 90% and the leucocytes 7800. The blood Wassermann test was negative. A roentgenogram of the abdomen showed a mass about the size of the fist in the left kidney region, but it did not appear to be connected with the kidney. It was thought that the tumor was attached to the mesentery.

On October 11, 1919, the abdomen was opened by a mid-line incision over the mass. A firm, oblong, smooth tumor was found lying in the root of the mesentery. This tumor was pale yellow in color, showing small ramifications extending upward and downward. The mass was about five inches long, three inches wide, and about one and one-half inch thick. On closer examination, it was found that the larger vessels supplying the mesentery were enmeshed in the tumor. No attempt was made to remove the tumor, as the greater part of the blood supply to the intestines passed through it. A specimen was removed for a pathological examination. The pelvic organs were normal and there were no other tumors in the abdomen. The abdomen was closed in layers with catgut. The patient had an uneventful recovery and was discharged from the hospital on the twelfth day.

Pathological report: Small piece of tissue, resembling fat tissue.

Microscopic: Specimen consists of fat tissue, in places showing the embryonic form of fat cells.

Diagnosis: Lipoma.

In a communication received from the patient one year after operation, she states that she still has some abdominal pain and constipation, but that her general health was much improved.

Of the solid tumors of the mesentery, the lipomata are the most common. In 1905, Bowers described a mesenteric lipoma. Harris and Herzog, who reviewed 56 cases, collected from the literature up to 1897, and added one of their own, state that 16 were diagnosed carcinoma; 15 lipoma; 7 sarcoma; and 6 fibroma; the diagnosis in the remainder was either mixed types or indefinite. Harris and Herzog believe that probably none of the diagnoses were microscopic.

The diagnosis of tumors of the mesentery is usually difficult and often impossible. Abdominal pain may be present and severe enough to suggest biliary, renal or appendicular colic, or it may be entirely absent. Greer cites pain and constipation as the most constant symptoms, and says that the tumor may be noted from a few weeks to 15 years before the patient consults a physician. The mass is usually to the right and below the umbilicus, and not adherent. Doran believes that diagnosis is impossible in most cases. In the differential diagnosis, confusion has existed with cysts of the ovary, pancreas, tumors of the liver, enlargements and displacements of the kidney, hydrops of the gall-bladder, and growths of the bowel itself. Because of their rarity, these growths are little considered in the diagnosis of abdominal tumors. From a practical viewpoint, the important thing is the recognition of the presence of a tumor and its prompt removal.

The surgical procedure, whether enucleation alone or combined with intestinal resection, cannot be determined until the tumor is exposed. Resection requires more time, adds to the surgical risk, and should be avoided whenever possible. Bigelow and Forman state that in those cases in which the tumor bulges the mesentery chiefly on one side and the overlying gut is consequently placed laterally, it may be possible to enucleate the growth without dangerous interference with the blood supply. If the overlying gut is more centrally placed, the tumor bulging both leaves of the mesentery equally, or if the gut is adherent to the growth at its wall and involved in the process, resection should be proceeded with at once. Successful cases where enterectomy was combined with the removal of a mesenteric sarcoma, have been reported by Harris and Herzog, Sawyer, Mathews and others. The length of the intestine removed has varied from one half an inch to eight feet and two inches. That the question of resection is not necessarily determined by the size of the tumor is evidenced by the case cited by Bowers, where a fibroma weighing 30 pounds was successfully enucleated.

In a series of 27 cases, collected by Vance, there were 16 recoveries and 11 deaths, a mor-

tality of 41%. Seven of these tumors were sarcomata, and only one of the patients recovered. Unquestionably, the mortality is higher in these instances in which the tumor proves to be malignant than in the benign forms of fibroma and lipoma, which make up the greater number of the reported cases.

Greer credits Horstius (1578-1636) with reporting the first mesenteric tumor found at necropsy, and Bricheteau with reporting the first fibroma, in 1824. Bigelow and Forman, in a recent paper, state that about 100 cases of solid mesenteric tumors have been reported up to the present time.

BIBLIOGRAPHY.

Bowers, L. G.: Tumors of the Mesentery. Brit. Med. Jour., 1904, ii, 1075-1081.
Harris, M. L., and Herzog, M.: Solid Mesenteric Tumors. Ann. of Surg., 1897, xxvi, 66-82.
Doran, A.: Fibroma of the Mesentery. Brit. Med. Jour., 1904, ii, 1075-1081.
Bigelow, L. L., and Forman, J.: Lymphosarcoma of the Mesentery. Ann. of Surg., 1920, lxxi, 11-15.
Judd, E. S., and McVay, J. R.: Fibromyoma of the Mesentery. Surg., Gyn., and Obstet., 1920, xxxi, 372-376.
Vance, J.: Solid Tumors of the Mesentery. Ann. of Surg., 1916, lxiii, 366-370.
Greer, W. J.: Fibromatous Tumors of the Mesentery. Brit Med. Jour., 1911, ii, 1085-1089.
Shepherd, F. J.: Successful Removal of an Enormous Mesenteric Tumor and Nearly Eight Feet of Intestine. Brit. Med. Jour., 1897, ii, 966-968.

PERFORATION OF MECKEL'S DIVERTICULUM OF JEJUNUM.

BY THOMAS R. DONOVAN, M.D., FITCHBURG, MASS.

PERFORATION due to piece of metal. Report of case.

Boy, aged eleven. Family history negative. Past history negative. Present illness began at four A.M., July 8th, when child was awakened with acute abdominal pain and vomiting. Seen by his physician at this time and examination showed marked tenderness right side of abdomen, especially at a point about one inch above McBurney's. Temperature normal, pulse 90. Slight degree of rigidity right rectus muscle. Patient given an enema with considerable relief of symptoms. Child was seen by me at four P.M. of same day. Temperature $100\,^{8}/_{10}$, pulse 120. Complaining of slight amount of abdominal pain but was apparently not suffering to any marked extent as he was up and about the house when I saw him. Examination showed a well developed and nourished boy about eleven years old. Tongue heavily coated and moist. Chest normal shape. Heart and lungs negative. Abdomen showed muscular spasm of slight degree of right rectus with a point of tenderness which was not marked, about one inch above McBurney's. No distention, no vomiting, no mass palpable. Diagnosis of probable acute appendicitis was made and operation advised.

Operation. Right rectus incision. Abdominal cavity entered behind muscle. Considerable cloudy fluid, slightly yellow, and somewhat resembling stomach contents found on opening peritoneum. Examination of intestines showed a condition of diffused peritonitis. Appendix was found to be normal. On exploring the abdominal cavity a hard mass about the size of a hazel nut was felt high up, in the region of the gall-bladder. This mass was freely moveable and when brought out of the abdominal cavity was found to be a Meckel's diverticulum attached to the base of a loop of small bowel, which from its blood supply and location, I judged to be jejunum. The tip of the diverticulum was buried in the distal end of the loop in a mass of adhesions and omentum and was covered with lymph. Upon freeing the end of the diverticulum the intestinal contents oozed out and the tip was seen to be perforated and gangrenous. Complete excision of the diverticulum with plastic repair of the opening into the intestine was done. Abdominal wound closed with drainage. Patient put up in Fowler's position and given Murphy drip. On the second day the boy developed a postoperative broncho-pneumonia, but in spite of this, he came along very nicely and was discharged well July 21st.

The specimen was sent to Harvard University for pathological examination and the following report from Dr. J. H. Wright was given:

"A diverticulum of the small intestine about 1¼ x ¾ inches with a perforation at tip. Presenting in the perforation is a thin sheet of metal about ½ x ½ inch and a small fraction of an inch thick. The metal has a tin or silver sheen when scraped.

Book Review.

Physiological Chemistry. By ALBERT P. MATHEWS, PH.D. Third Edition. Illustrated. New York: William Wood and Company. 1920.

Previous editions of this text-book and manual for students have been favorably reviewed in the JOURNAL. In this third edition, the practical part has been rearranged and largely rewritten; many new and important methods have been added, especially those of blood analysis; and many revisions have been made, particularly and most extensively in the chapter on vitamines. The book is stimulative and original in its treatment of what seems to many a highly technical subject.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI — FRED S. HOPKINS
LAURENCE D. CHAPIN — CHARLES H. LAWRENCE
AUSTIN W. CHEEVER — HERMAN A. OSGOOD
ISADOR CORIAT — EDWARD H. RISLEY
ERNEST M. DALAND — WILLIAM M. SHEDDEN
RICHARD S. EUSTIS — GEORGE G. SMITH
ROBERT M. GREEN — JOHN B. SWIFT, JR.
JOHN B. HAWES, 2D — WILDER TILESTON
JOHN S. HODGSON — BRYANT D. WETHERELL

SIGNIFICANCE OF DIABETES MELLITUS IN MENTAL DISORDERS.

PIKE, H. V. (*Jour. A. M. A.*, June 4, 1921) states that:

1. The occurrence of sugar in the urine is frequently associated with diseases of the central nervous system, both organic and functional.
2. Diabetes mellitus may occur in the course of any psychosis as a purely physical complication.
3. Diabetes mellitus may be the direct etiologic factor in the development of a psychosis; if it is early recognized and promptly treated, the progress of the mental disorder may be stayed. [E. H. R.]

THE DIAGNOSIS OF CHRONIC GENITAL GONORRHEA IN THE FEMALE.

CHEVY, T. H., AND DI PALMA, S. (*Jour. A. M. A.*, June 4, 1921) state that:

1. Cutaneous tests made with the glycerinated extract and the protein extracted from the gonococcus is useless in detecting the presence of a gonorrheal inflammation of the urethra, cervix and adnexa.
2. A local gonococcal infection limited to the genital tract of females does not produce sufficient immune of toxic substances in the blood, or for a sufficient length of time to make the complement fixation test of diagnostic value.
3. The laboratory methods which we have at present to aid us in the diagnosis of chronic genital infections are extremely unreliable and inadequate, and the best guide is a reliable history of the case, together with the clinical findings. [E. H. R.]

ROENTGEN RAY AND TUBERCULOSIS IN INFANTS AND CHILDREN.

O'BRIEN, F. W., AND AMES, F. B. (*Jour. A. M. A.*, May 28, 1921), from a study of forty-four cases, draw the following conclusions:

As a result of a statistical study of forty-four infants and children at the Boston Consumptives' Hospital we found that:

1. (*a*) The von Pirquet and intracutaneous skin reactions are reliable guides to infection with tubercle bacilli, and the number of positive reactions increases from infancy up through childhood, over ten years of age, all patients reacting. (*b*) In twenty-six of thirty-six positive skin reactions, the roentgen ray disclosed the site of infection to be intrathoracic.
2. D'Espine's sign as a clinical index of tuberculosis of the bronchial lymph nodes is of relatively little value, being elicited only eleven times, as against roentgen ray evidence of glandular enlargement in twenty-eight cases.
3. Three cases of positive sputum were found in fourteen diagnoses of chronic pulmonary tuberculosis.
4. Fourteen cases of chronic pulmonary tuberculosis of the adult type were found. This suggests that the so-called phthisis is more common in children than has been stated by writers of textbooks.
5. Fifteen cases, negative clinically, showed definite roentgen ray signs of marked structural changes consistent with tubercle infection. This raises the question as to whether these children are to be regarded as more likely to develop clinical tuberculosis and should thus be watched carefully and roentgenographed at fairly frequent intervals. [E. H. R.]

ENLARGEMENT OF THE SPLEEN IN EXPERIMENTAL ACIDOSIS.

HORAN, WILDER R. (*Jour. A. M. A.*, June 4, 1921) finds that:

1. (*a*) The subcutaneous injection into guinea-pigs of hydrochloric acid produces an acidosis demonstrable by a decreased ability of the plasma to combine with carbon dioxid as estimated by the Van Slyke method.

(*b*) That animals have a varying susceptibility to such poisoning with acid, and the organism can be made to adapt itself slightly to gradually increased doses of acid.

(*c*) An experimental acidosis can produce an anemia associated with an enlargement of the spleen.

2. They suggest that the enlarged spleen may be due either to an increase in its function as a hemoglobin-destroying organ as a result of the hemolysis, or as a result of its hyperfunction as a hematopoietic organ in combating the anemia accompanying an acidosis. [E. H. R.]

BRONCHIAL SPIROCHETOSIS.

BLOEDRON, W. A., AND HOUGHTON, J. E. (*Jour. A. M. A.*, June 4, 1921) believe that:

1. Bronchial spirochetosis exists in the United States, and is probably more widespread than is generally recognized.
2. The disease, in its clinical aspects, is very suggestive of pulmonary tuberculosis, but usually can be readily distinguished from this infection.
3. The routine examination of all sputum should include a search for spirochetes, and their presence should be regarded as significant, unless proved otherwise.
4. The disease appears to be capable of transmission from an infected to a non-infected individual, although the degree of contagiousness is probably slight.
5. An individual harboring the spirochetes in the sputum may present little or no evidence of the disease himself, and it appears that there exist carriers of *Spirochaeta bronchialis*.
6. The disease, as a rule, responds readily to treatment, and the arsenical preparations, particularly arsphenamin or neo-arsphenamin, are very efficacious. [E. H. R.]

THE EFFECT OF PROHIBITION ON THE INCIDENCE OF PORTAL CIRRHOSIS.

MILLER, J. L. (Jour. A. M. A., June 11, 1921) analyzing cases coming to the Cook County Hospital, makes the following statement:

"From these figures there can be little doubt that portal cirrhosis, in this country, at least, is associated largely and possibly entirely with the use of alcohol.

"The very sudden drop in the incidence of cirrhosis following prohibition suggests that progression of the process of liver ceases when alcohol is discontinued. With few exceptions, the diagnosis of portal cirrhosis, when made at the Cook County Hospital, indicates very advanced cases with ascites, and cirrhosis in this stage has almost disappeared." [E. H. R.]

AMERICAN CHILDREN IN THE TROPICS.

BERCOVITZ, N. (*Jour. A. M. A.*, June 11, 1921) makes the following interesting and practical statements:

The commercial expansion of the United States means that more men are going into the tropics. The physician at home will be consulted by these men as to the advisability of taking their families with them to their new place of business. Women will seek advice on the bearing and rearing of children in these climates.

It is my experience and observation, over a period of six years' residence in the tropics, that healthy American children can be brought up in the tropics, and no American need hesitate to go to tropical climates if these conditions are met:

1. The housing facilities must be ample to secure plenty of space, good ventilation, and proper screening protection. From purely business considerations, no business firm should ask an employee to move to a place where housing conditions are not of the best.

2. The wife and mother must be prepared to enter on a period of ceaseless vigilance and cooperation with the physician in: (*a*) problems of nursing and feeding of infants; (*b*) sterilization of drinking water and food; (*c*) fighting against flies and mosquitoes, and (*d*) care of the skin, and the protection of children from the heat of the sun and from chills.

The sixteen healthy American children in Hainan owe a great deal to the intelligent care bestowed on them by their mothers.

3. No family should live in a place where good medical care is not available at the shortest notice. Many tropical diseases are quick and deadly in their action, especially in children.

4. Frequent (yearly) changes from the heat into a cooler climate should be possible for mother and children.

Of these conditions, the most important is the responsibility resting upon the wife and mother, from the moment of the birth of the child, through the nursing period, especially if there are difficulties of feeding, until the child leaves the tropics for study at home.

If these conditions are met, American children born in the tropics will be healthy. And there will be advantages, too. The careful watchfulness of mother and physician, and the rigid hygiene as practiced in the tropics, together with the absence of scarlet fever, diphtheria, and other diseases of colder climates, should make for healthy bodies. [E. H. R.]

NATURAL RECOVERY OF GANGRENOUS GUT.

PILLAI (*Ind. Med. Gazette*, April, 1921) reports a case of strangulated inguinal hernia of four days' duration. At operation, the hernial sac was found to contain dark sanious fluid and about three feet of small intestine, intensely congested, of a dark purplish hue and, in places, apparently gangrenous. Resection was not done. The stricture was divided and the coils released and re-introduced into the peritoneal cavity. The gangrenous-looking portion of the gut gave way at one point, but the opening was closed with catgut and the peritoneal cavity walled off with gauze. The wound was closed with only a superficial drain at the lower end. At the end of the operation the patient collapsed but revived in response to salt solution and stimulants, and, except for a stitch abscess, made an uninterrupted recovery. [L. D. C.]

THE IMPORTANCE OF A THOROUGH EXPLORATION OF THE INTRA-ABDOMINAL ORGANS IN OPERATIONS FOR EPIGASTRIC HERNIA.

LEVISHON, R. (*Surg., Gyn., and Obstet.*, June, 1921) reports the following complications discovered in course of operations for epigastric herniae, ulcer of the body and ulcer of the lesser curvature if the stomach, carcinoma of the stomach, pyloric ulcer, duodenal ulcer, appendicitis and cholelithiasis. He further says that every patient who has associated with his epigastric hernia vague symptoms which might be ascribed to the intra-abdominal organs, ought to have the benefit of a thorough exploration. It will undoubtedly be found that epigastric hernia *per se* is responsible for intra-abdominal symptoms in a comparatively small percentage of cases. [E. H. R.]

POST-OPERATIVE MASSIVE COLLAPSE OF THE LUNG.

SCRIMGER, F. A. C. (*Surg., Gyn., and Obstet.*, June 1921) reports a very interesting series of cases in which complete massive collapse of the lung took place after such operations as that for appendicitis and inguinal hernia and hemorrhoids. X-rays confirmed the clinical diagnosis. The histories are reported. An adequate explanation is not at present available. [E H. R]

TREATMENT OF CARCINOMA OF THE TONGUE.

QUICK, D. (*Ann. Surg.*, June, 1921) states that, in his opinion, the primary lesion in cancer of the tongue should be managed entirely by the use of radium. The use of bromid emanation in weak tubes uniformly distributed throughout the growth is by far the method of choice in applying radium. The cervical nodes should be treated conservatively, first by external radiation, then the node is free from palpable involvement and then, should metastases appear, the treatment of these should be by external radiation, followed by a complete bloc dissection of the node, under local anesthesia, coupled with the use of radium emanation in very weak tubes buried throughout the wound.

He feels convinced that this form of treatment in selected cases will yield a larger percentage of clinical cures than will surgery alone in the selected operable group. [E. H. R.]

PRINCIPLES UNDERLYING THE TREATMENT OF HEART DISEASE BY EXERCISE.

BARRINGER, J. B. (*Jour. A. M. A.*, July 2, 1921) makes the following statement in concluding his article:

The improvement in the general condition of the heart patient, his lessened liability to general infections, and the increase in his exercise tolerance, are all quite well known results of exercise and sufficient to establish its value as a therapeutic agent. There is, however, reason to believe that exercise has another and most important function. If the idea which ascribes to infection the chief rôle in the causation of heart failure to correct, exercise must have a definite preventive value against this most serious complication of heart disease. The marked influence on the coronary circulation and the effect on the nutrition and contractility of the heart muscle fibers, which exercise will cause in a normal heart, are important teachings of the newer circulatory physiology. We have indicated the similarity of the effects which exercise, properly graded, will cause in a damaged heart. The resistance of the heart muscle to infection must certainly be much increased thereby and, in conjunction with the removal of infectious foci elsewhere in the bory, may well be the most important preventive measure against heart failure which we possess. [E. H. R.]

THE BOSTON
Medical and Surgical Journal
Established in 1828

THURSDAY, AUGUST 18, 1921

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years JAMES S. STONE, M.D.
HORACE D. ARNOLD, M.D.
CHANNING FROTHINGHAM, M.D.
For two years HOMER GAGE, M.D., *Chairman*
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.
For one year WILLIAM H. ROBEY, JR., M.D.
ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.

EDITORIAL STAFF.

DAVID L. EDSALL, M.D.
WALTER B. CANNON, M.D.
REID HUNT, M.D.
ROBERT W. LOVETT, M.D.
EDWARD H. NICHOLS, M.D.
FRANCIS W. PEABODY, M.D.
JOHN P. SUTHERLAND, M.D.
S. BURT WOLBACH, M.D.
GEORGE R. MINOT, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*
GEORGE G. SMITH, M.D., *Assistant Editor*

SUBSCRIPTION TERMS: *$6.00 per year, in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper. Upon written request, authors will be furnished free one hundred eight-page reprints, without covers, or the equivalent in pages in articles of greater length.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

OPPORTUNITIES FOR COÖRDINATE EFFORT IN PROMOTING PROTECTION OF THE PEOPLE.

THE MEDICAL PROFESSION is often criticised because of failure to create or perfect organizations designed to instruct the people concerning matters of vital interest.

In this State there are many societies and committees formed for the purpose of studying disease and its prevention. The Massachusetts Medical Society has committees on Public Health, Education, Legislation, and a special committee authorized to study the problems of maternal and infant welfare, and has recently created a committee to study the value of the work performed by certain cults.

These committees study problems presented, arrive at conclusions and make recommendations at various times. The Committees on Education and Legislation work hard to influence the Legislature to adopt good, and defeat bad measures. But much time and effort seems to be without effective result unless one may feel that through appeals and by arguments more or less information reaches the public at large. But these committees have felt in the past that the disappointments are due to lack of cooperation by the great mass of practitioners. The question is asked, how can we secure united and effective support? No one has given a real answer, and so the work goes on, year by year. Matters are presented to the members of the society, and there is little evidence of coöperation with committees. It has been suggested that effective results would be secured by the employment of agents who could do work at the State House and in public meetings rouse intelligent support. This latter method is not generally endorsed, for the reason that the expenditure of money would tend to deceive the people and lead to the suspicion that doctors were making an investment for the purpose of securing an adequate return. Such impressions would be apt to bring about a reaction against any recommendation by the profession. If that is so, then money should be used only by those who may profit by the expenditure, and then only in legitimate ways. The people themselves profit when disease and sickness are diminished, and up to a certain point, Boards of Health spend money properly for this reason, but Boards of Health are so controlled by the people that expenditure of money can be made only along lines which meet the approval of the majority and cannot be applied to propaganda of instructions concerning matters about which the people are seriously divided. There are, however, corporations which have a legitimate monetary interest in the lives of large groups of people, for their profit comes from continued life and ability to pay premiums on insurance policies. These companies employ expert physicians for the purpose of investigating the liability to death of those who apply for insurance, and who carefully investigate all contingent influences which affect a risk, but so far as the public is informed, do not actively enter upon campaigns designed to eliminate inefficient medical service. The medical directors are well trained in medicine and have scientific knowledge. These men must believe in the value of good medical service and yet, in a general way, have not seemed to take interest in opposing the growing influence of the cults. They would reject an applicant engaged in a hazardous occupation, and it has been repeatedly shown that poorly trained practitioners have allowed cancer patients to procrastinate, and in other cases have not availed themselves of recognized curative agents. It would seem logical for insurance companies to actively enter the field and combat the tendency to legalize unscientific medicine, for the person who discards rational medicine and employs Christian Science healers or chiropractic manipulators may, if a real lesion exists, be in a hazardous situation. It is true that one of the larger companies actively opposed the anti-vaccination movement in California, and taking that action as a precedent, why should not the medical profession try to induce the medical advisers of the large insurance companies to influence the directors to unite in every movement which will lead the

people to avoid falling into the snares of the mercenary pretender.

We have passed through the stage of combatting the ignorant, itinerant quack; we are now face to face with organizations with large resources which are actively at work trying to alienate the people from adherence to trustworthy practitioners. As a profession, we exert very little influence when opposed by arguments which appeal to prejudice. Why should not insurance companies work for their interests and the benefit of the people? Here is a possible opportunity for coördination.

ANTERIOR POLIOMYELITIS AND TYPHOID FEVER IN BOSTON.

SEVEN cases of poliomyelitis were reported in Boston in July. During the first week in August, four new cases were reported. It seems probable, therefore, that cases of the disease will occur to some extent at least, during the next two or three months. We are still as much in the dark as ever regarding the manner in which this disease is transmitted, but it would seem that the precautions with respect to the isolation of patients, as required by the regulations of the Health Department, are justifiable. As to the practical value of early recognition and prompt rest in mitigating the possible results of the disease, there can be no question. Parents and physicians will, therefore, do well to keep in mind during the next few months the possibility of anterior poliomyelitis in cases of illness with symptoms which may be attributable to this disease.

Eight cases of typhoid fever have been reported in residents of Boston since August 1st. There were eight such cases reported during the month of July. Some of these persons undoubtedly contracted the disease outside the city. Some were probably infected within the city but there is no indication of a common source of infection.

BOTULISM AND ENCEPHALITIS LETHARGICA.

ON April 20, 1921, a man died in the Marine Hospital, San Francisco, after a week's illness. The patient had subnormal temperature, except at the time of admission and before death. The pulse averaged up to 121 until the third day before he died, and increased from that time. The white count was 21600, differential count, 91 per cent; neutrophiles and red count, 5,500,000. At autopsy, the conditions found in the brain led to a diagnosis of encephalitis lethargica. B. botulinus, type B, was isolated from the brain. This is the first recorded instance in which the B. botulinus has been isolated from the brain. It is evident that it may be difficult to differentiate encephalitis lethargica and botulism. Reports have been circulated that many, if not all, cases of lethargic encephalitis are really botulism. The local government board in England reported that researchers, in 1918, found that encephalitis lethargica cannot be identified with botulism. Simon Flexner and investigators, in France, agree with the English report, but an untrained observer, without autopsy and laboratory experience, may fail to differentiate.

MEDICAL NOTES.

DR SUMNER B. REMICK has been appointed by Dr. Eugene R. Kelley, Commissioner of Public Health, director of the Division of Tuberculosis Sanitaria, to succeed Dr. William J. Gallivan, deceased. Dr. Remick has established a reputation as Superintendent of Sassequin Sanatorium, New Bedford, and has been influential as a consultant. Dr. Remick is a native of New Hampshire, a graduate of Tilton Seminary and the Tufts Medical School. The Executive Council will probably confirm this appointment August 10.

MARRIED, on Saturday, August 6, 1921, C. E. Prior, M.D., and Alice A. Brady, both of Malden, Mass. The bride is a graduate nurse and has been engaged in anti-tuberculous work with the Malden Board of Health.

CAMPBELL ACTING CHIEF OF CHEMISTRY—SKINNER NAMED AS ASSISTANT.—Washington, D. C., July 30. By an order of Secretary of Agriculture Wallace, signed today, Walter G. Campbell, assistant chief of the Bureau of Chemistry since 1916, is made acting chief to fill the place of Dr. Carl L. Alsberg, whose resignation, effective July 15, is now officially announced.

Dr. W. W. Skinner, chief of the water and beverage laboratory of the bureau since 1908, is designated as assistant chief.

Mr. Campbell has been with the bureau since 1907, when he was called from his work of assisting in enforcing the State food and drug laws of Kentucky, and was selected by Dr. H. W. Wiley, then chief of the bureau, as chief inspector to organize the inspection work under the Federal Food and Drugs Act, which became effective at that time.

Upon the reorganization of the Bureau of Chemistry in 1914, he was made chief of the eastern food and drug inspection district, and in December, 1916, was promoted to assistant chief. Mr. Campbell has been largely instrumental in organizing the field work of inspecting interstate and foreign commerce in food and drugs. He is 44 years old, a native of Kentucky, and a graduate of the University of Kentucky.

Dr. Skinner entered the service of the bureau in 1904, and has had considerable experience in agricultural chemistry, having been connected as a chemist with the Maryland Agricultural College, now part of the University of Maryland, and the Arizona Experiment Station. He has had charge of the beverage work of the bureau in the enforcement of the Food and Drugs Act. He was born in Baltimore in 1874, and received the degree of bachelor of science at Maryland College in 1895 and master of science at George Washington University in 1897. The Maryland institution has since conferred upon him the degree of doctor of science.

THE STATE ASSOCIATION OF BOARDS OF HEALTH met at the Atlantic House, Nantasket, Thursday, July 28th. Dinner was served to about forty members. Four new members were admitted. Dr. Benjamin White was the first speaker, and read a paper on the Schick test, and at the close of the paper it was discussed by Dr. Finnigan, District Health Officer, and Dr. G. F. Curtis of Newton.

Dr. White explained the method of administering the Schick test by injecting the serum *into* but not under the skin. He stated that the reaction follows in from six to eight hours to three days. The tests are read on the fourth day.

The tests have shown that children and adults in the country are more susceptible to the disease than those in cities, and also the poorer classes show greater immunity than the well-to-do. Where the reading shows a negative test the person is regarded as immune and anti-toxin is not required; in a pseudo-reaction it should not be given, but in a positive reaction it should be administered at once. A person once immune is usually always immune. It may be that a negative test is the result of an error in technic of operation. About 2% of negative tests have been later shown to be positive.

Dr. White recommended that local boards of health urge the Schick test and try to bring the public up to a realization of its value. The State prepares the serum and furnishes it to the physicians.

Dr. Curtis of Newton told of the work done in that city. In the schools, children were required to bring signed slips from their parents authorizing the application of the test. Cards were made containing names, addresses, etc., and the tests read and records made on fourth day. If pupils were absent they were visited in their homes and the arms read. The cost of doing this work is slight and requires but little equipment.

Dr. Kenney, Medical Inspector in the Worcester schools, spoke on Medical Inspection in Schools, and opened his remarks by saying that medical inspection in schools means just what it says. Before the beginning of each school year the buildings are thoroughly cleaned and washed, and they are required to be kept open during the summer so that fresh air and sunlight may be admitted. Children under normal weight are placed in groups and given special attention. Dr. Kenney believes that children can thus be made physically fit, and that their slow mental development can be built up by special attention to physical conditions. It was an enjoyable and stimulative session.

Dr. White invited members of the Association to visit the State Laboratories at Jamaica Plain.

AT a meeting of the Brookfield Medical Club, Wednesday, July 20, 1921, a Medico-Legal Committee was elected. The members elected are: J. R. Fowler, M.D., Chairman, Spencer, Mass.; D. M. Ryan, M.D., Ware, and J. E. Dalton, M.D., Warren. The reasons for the formation of the Committee will be stated in a letter to the readers of the BOSTON MEDICAL AND SURGICAL JOURNAL. The Committee was given full authority to act freely on any question it saw fit, and needed attention.

DR. FRANCIS O'BRIEN has been appointed superintendent of the Hampshire County Sanatorium at Leeds, to take the place of Dr. Charles E. Perry, who resigned to take charge of the Government Tuberculosis Hospital in California. Dr. O'Brien is a graduate of Fordham Medical School, 1917. He served in the Navy during the war. He is a son of James W. O'Brien, formerly mayor of Northampton.

MEMORIAL TO DR. GORGAS.—There will be founded The Institute for Medical Research in Tropical Diseases, in Panama City, as a memorial to General William Crawford Gorgas. The Panama Government has donated the building site and equipment of the Gorgas Institute. Other countries are expected to raise the maintenance funds.

Dr. Franklin H. Martin, chairman, and Admiral W. C. Braisted and Señor Lefèvre constitute a committee having the creation of the fund in charge. It is expected that three to five million dollars will be raised in this country. It is provided in the charter that expeditions will be sent to all South American countries for the purpose of making researches concerning tropical diseases. The diseases of animals which have relation to human disorders will be studied. The idea was originated by Dr. Bilisario Porras, President of the Republic of Panama.

Although work on tropical diseases has been prosecuted in various medical schools, Panama is especially well located to deal with these problems.

LACK OF FUNDS will compel the Baby Hygiene Association of 196 Boylston street to cur-

tail its work unless about twenty thousand dollars can be raised.

Five of the twenty-two stations will have to be closed unless assistance is forthcoming, and work curtailed in some of the remainder. The City Health Department is doing all that it can in the health unit on Blossom street. The JOURNAL has called attention to the fact that the mortality among infants is higher in Boston than in New York City. Without the assistance of the Baby Hygiene Association, the mortality rate may continue above normal. This Association should have abundant support.

THE SUPREME JUDICIAL COURT OF MASSACHUSETTS has recently refused to enjoin the erection of a tuberculosis hospital as a nuisance. This decision was handed down as a result of a petition of residents of Fall River who objected to the erection of a hospital by the city. Quotations from the opinion are as follows:

"Hospitals for contagious diseases must be established and maintained for the protection of the general public; and it is not to be assumed in advance that such a hospital, well equipped and managed under the supervision of public health boards will be a nuisance. * * *

"Without going so far as to say that purely mental discomfort can not constitute a nuisance, certainly the law will not enjoin the erection of a municipal hospital on facts such as are disclosed by this record, in order to protect the plaintiffs from dangers which are found to be unreal. * * * Depreciation of the market value of the petitioners' land, assuming it to be proved, would not be decisive in their favor. * * * In Everett *v.* Paschall, 61 Wash., 47; 111 Pac., 879; 31 L. R. A. (N. S.) 827; Ann. Cas., 1912B, 1128, relied on by the petitioners, the defendant maintained in his cottage, adjoining the lots of the plaintiffs, a private sanatorium for the treatment of tuberculosis patients; and the injunction was granted, partly at least, under the influence of a statute of that State which broadened the definition of nuisance.

"There is nothing in this case, nor in Cherry *v.* Williams, 147 N. C., 452; 61 S. E., 267; 125 Am. St. Rep., 566; 15 Ann. Cas., 715, to support a claim that a public hospital for the treatment of tuberculosis is a nuisance *per se*. In view of the findings of the master we should have to go substantially to this extreme in order to say that the trial judge was not warranted in dismissing the bill for an injunction. * * * "

THE NEW YORK COUNTY CHAPTER of the Red Cross has conducted a "splash week." The campaign consisted of five instructors in swimming, for the purpose of reducing the mortality from drowning. Every swimmer is a possible savior of life.

DR. L. D. BRISTOL, State Health Commissioner of Maine, has arranged with the Federal Government for postage for cards to be used by physicians in reporting communicable diseases. This relieves the physician of trouble and expense. The State Board of Health, in coöperation with the Maine Public Health Association, is conducting a state-wide sanitary survey.

THE SCHOOL LUNCH HOUR is being quite generally recognized as a valuable aid to pupils. It should not be considered as a temporary aid to unfortunate children. The quality of work done and the general morale of a school are much better where the lunch hour has been adopted.

WEEK'S DEATH RATE IN BOSTON.—During the week ending July 30, 1921, the number of deaths reported was 203 against 164 last year, with a rate of 13.97 against 11.43 last year. There were 29 deaths under one year of age against 23 last year.

The number of cases of principal reportable diseases were: Diphtheria, 27; scarlet fever, 8; measles, 37; whooping cough, 7; typhoid fever, 1; tuberculosis, 28.

Included in the above were the following cases of non-residents: Diphtheria, 3; scarlet fever, 2; measles, 1; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 3; measles, 2; typhoid fever, 1; tuberculosis, 12.

Included in the above were the following cases of non-residents: Diphtheria, 2; measles, 1; tuberculosis, 3.

Rabies in man, one death (non-resident).

Obituaries.

JOHN FRANCIS CROSTON, M.D.

DR. JOHN F. CROSTON, prominent physician of Haverhill and medical examiner of the fourth Essex district since 1882, died at his home on July 30, 1921, of heart disease. Although suffering with the disease for several years, he was able to attend to his practice until a short time before his death.

The son of George and Elaine Croston, he was born at Bradford, Mass., May 17, 1855. After attending the schools of the town and graduating from the high school, he became compositor in a newspaper office in Lawrence, subsequently working on a Boston paper. Taking up the study of medicine, he attended

Dartmouth Medical School for a year, transferring to the Medical Department of the University of the City of New York and receiving there an M.D. in 1881. From 1880 to 1881, he was interne in the Work House Hospital on Blackwell's Island, then returned to Haverhill to practice and take part in public affairs, first obtaining fellowship in the Massachusetts Medical Society.

In 1882, Dr. Croston was appointed by Governor John D. Long, medical examiner for the district comprising Haverhill and Merrimac, holding the office through successive seven-year appointments until his death. Being elected to the board of health in 1883, he served for a series of years, at one time being chairman. He was also a member of the school board and when the city government was changed to a commission he was elected a member of the school board by the largest vote ever cast in Haverhill for a candidate for public office.

In the year 1901, Dr. Croston was a councilor of the Massachusetts Medical Society, and from 1902 to 1904 he was president of the Essex North District Medical Society. Among the other societies in which he held membership are to be mentioned the American Medical Association, Massachusetts Medico-Legal Society, State Association of Boards of Health and Haverhill Medical Club. He was attending physician and surgeon to the Hale Hospital and medical examiner for a number of life insurance companies. During the World War he acted as chairman of the draft board.

He is survived by two sons and two daughters.

A man of the highest integrity, of excellent professional attainment and most highly respected by all the community, rich and poor alike. He died as he wished to die,—in the harness.

EBENEZER ALDEN DYER, M.D.

DR. EBENEZER ALDEN DYER died at his home in Whitman August 5, 1921, at the age of 64, following an illness of more than a year.

He was educated in the Whitman public schools and at Bellevue Hospital Medical College, where he received his M.D. in 1882, returning to his native town, joining the Massachusetts Medical Society and settling in practice. In 1906 he was a member of the State legislature and since then had served on the local board of health and on the school committee. He was a Mason, a Knight Templar, a member of the Sons of Veterans and was president of the Bridgewater Historical Society.

Miscellany.

DRUG REMOVAL AND DEATH.

New York, Aug. 3, 1921.

Editor, BOSTON MEDICAL AND SURGICAL JOURNAL:

OFFICIALS connected with the narcotic squad are quoted in the press as making certain statements in extenuation of the sudden death of Otto Thompson, an opiate addict, who fell dead at Police Headquarters after his arrest for possession of narcotics.

One of these statements is that "drug cure records show no instance of a man dying of drug removal."

According to some statements coming from "experts" of the squad, his death is attributed by them to the heat.

Neither statement is convincing to those who are familiar with addiction and its literature and record.

As to his dying of heat, the fact is that he was deprived of his drug and died. It is pretty hard to get around this sequence of events without some real medical proof of actual scientific value.

As to "drug cure records" showing no instance of a man dying of drug removal—it is possible that such statistics and records may intentionally or ignorantly cover up a good deal more than deaths from drug removal. The Legislative Investigation, under the last Republican state administration, Whitney Investigation, advised an investigation of the "drug cures" and institutions, public and private. That was one of the things the recently defunct Department of Drug Control was supposed to do and one of the purposes for which it was created. It overlooked this important function in the activities upon which its actual administration finally centered after Senator Whitney's influence was removed from it.

Statements based upon "drug cure records," which may need considerable investigation

themselves, are not conclusive in the light of the amount of authoritative literature on the matter of death resulting from "drug removal."

The scientific and other record and literature on addiction to opiates in the matter of death resulting from withdrawal of opiates is more convincing.

As to showing instances of "a man dying because of drug removal," there is so much mention and discussion of it in the literature that its acceptance ought to be axiomatic with anybody at all familiar with the subject. Practically every writer of any importance in this subject refers to it.

That it seems to have escaped the attention of the "experts" of the New York City Board of Health and Police Department is something for them to explain. It is common knowledge elsewhere.

Merely to quote from the three widest and best-known modern authorities and writers on the subject of narcotics and narcotic drug addiction, gives some idea of available information:

Dr. Alexander Lambert in *Osler's System of Medicine*, page 215, says:

"When morphine is cut off abruptly there is great danger of collapse. This may supervene on the second or third day and the patient shows increased weakness, appears pinched and haggard, while *the pulse becomes small and then disappears.* Or he may show a sudden high pulse tension, feebleness of the heart action and *suddenly fall pulseless to the floor.*

"Sometimes the fatal collapse may occur without warning while the patient is quietly talking or sitting in bed.

"Still another form of collapse may occur; the face becomes deep red, the eyes shine brightly, the pulse falls to forty and the patient loses consciousness after a feeling of intense agony.

"These collapses may last for fifteen or twenty minutes; they may recur three or four times in the twenty-four hours; and the patient may recover or *he may die in any of them unless morphine be given.*

"Fortunately these attacks are rare when the drug is withdrawn gradually. But *they are fairly common when this is done abruptly.*

"There are some few cases on record in which the fatal collapse occurred some time after the patient was convalescent and had apparently passed through the symptoms of abstinence and was well on the road to recovery."

Dr. Ernest S. Bishop, in his book, *The Narcotic Drug Problem*, page 35, writes:

"In observing opiate addicts over a length of time, no one can escape the recognition of a chain of constantly present physical manifestations, inevitably following the non-administration of the drug of addiction."

Dr. Bishop says that these may vary in different cases somewhat, but that,

"In a general way they may be said to begin with a vague uneasiness and restlessness and sense of depression; followed by yawning, sneezing, excessive mucous secretion, sweating, nausea, uncontrolled vomiting and purging, twitching and jerking, intense cramps and pains, abdominal distress, *marked circulatory and cardiac insufficiency and irregularity,* pulse going from extremes of slowness to extremes of rapidity with loss of tone, faces drawn and haggard, pallor deepening to grayness, exhaustion, collapse, *and in some cases death.*"

Dr. George E. Tettey, in his book, *Narcotic Drug Diseases and Allied Ailments*, page 41, states:

"The abrupt withdrawal of an opiate from patients addicted to its use without first preparing the patient's system for such withdrawal, *is not only dangerous to life but is barbarous.*

"This course is not now pursued in any reputable institution for treatment, but it is often practiced in our insane hospitals and jails.

"Persons who are addicted to narcotic drugs are arrested, thrown into a cell, without any provisions whatever to supply them with drugs, and within twenty-four to forty-eight hours *the victim is taken from his cell a corpse,* having sunk into complete collapse.

"He was already in extremis when arrested, and being thrown into a cell where he is helpless and unprotected, he soon *sinks into collapse and death closes the scene.*"

The narcotic squad, perhaps, cannot be expected to be familiar with scientific literature, but there is no excuse for health organizations and medical officials not showing knowledge of it.

If the New York City Board of Health had done more real medical and scientific and public health educational work and study on this matter, possibly we might have been spared the present condition of things.

JOHN P. DAVIN, M.D.

[NOTE.—While this matter has received little public attention in Boston, it has been of sufficient importance to be discussed at length in some New York papers.]

MONTHLY BULLETIN, INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE records of the first six months of the year reflect the unusually good health conditions which have prevailed throughout the country. The outstanding feature, compared with the work of the first half of last year, is the drop in the death rate in practically every branch of nursing. There were 47,928 visits made to 20,716 patients,—a slight decrease in the number of patients, as was to be expected in view of the epidemic of influenza and pneumonia of February, 1920.

Sick Patients.

There were fewer cases of acute illness, with the exception of tonsillitis and typhoid fever, of which latter there were four times as many as usual.

The two cases of lethargic encephalitis have recovered.

There were 687 cases of measles, whooping cough, chicken pox and mumps, as compared with 1278 cases; 178 cases of influenza, with no deaths, as compared with 2209 cases and 32 deaths.

There were 594 cases of bronchitis against 887; 617 cases of pneumonia with a case fatality of 9%, against 1124 cases with a fatality of 14%. Fewer cases of other respiratory diseases and of intestinal diseases.

There were 41 cases of syphilis and gonorrhea as against 15.

The number of cases of burns, lacerations, contusions and other conditions due to accidents has increased about 10%. There is also an increased number of cases of cancer and of heart disease.

Preventive Work.

All branches of the work which are chiefly preventive and not affected by health conditions show an encouraging increase, with a gratifying record of life saving at time of child birth, where the waste of life in Massachusetts is so appalling.

Maternity Work.

To women at time of delivery we are able to offer nursing service in only four stations. Among the 273 women who availed themselves of the service, there was not a single death. About one-quarter (¼) of the women who give birth to babies in Boston are cared for after delivery by the district nurses. The death rate among these patients dropped to 1.3 from 2.1 per 1000 cases in the first six months in 1920. The proportion of maternity patients who desire nursing care before as well as after the births of their babies, is yearly increasing, the total number of prenatal patients increasing 15% and of prenatal visits 30% during these months.

There was a drop in the number of still births. This is especially encouraging, as the still birth rate last year was alarmingly higher than usual, with no apparent cause.

Well Baby Work.

The mortality among well babies who report to our clinics, followed with home visits by the district nurses, shows an almost sensational drop from 12 last year to 4.1 per 1000 under one year of age this year.

Correspondence.

RURAL HEALTH AND MEDICAL SERVICE.

Deerfield, Mass., August 4, 1921.

More or less public attention has been drawn to the fact that Massachusetts has a large number of towns with no resident physician. This is not to say that such towns are beyond the reach of medical service, but, ordinarily, better protection is assured if the doctor lives within two or three rather than at a distance of eight to fifteen miles from a patient. It would seem desirable for all community and social interests to have physicians better distributed, provided, of course, that the individual, the potential patient, the town realizes the value of having such service within reach and appreciates the fact that it must pay at least as much for its ounce of prevention as for its pound of cure in order to insure reasonable health protection. In other words, a physician's living must be assured. Public utilities have to charge for their readiness and ability to render service.

Some of the objects of the Committee on Rural Health and Medical Service have already been advanced. The main purpose is an endeavor to mobilize some of the benefits generally accruing in and about metropolitan districts so that physicians in rural sections may have some practical way of reaching these advantages. Hospital facilities, consultation clinics should be brought nearer to the practitioner. There must be rural relief stations and a more tangible and personal form of extension education for the upkeep of the isolated doctor. All this means a better exchange of relations between specialists and general practitioners and should prove both of educational and financial benefit.

To carry out this project a strong appeal is being made through these columns and in other ways for financial aid. Checks may be sent to the editor of this JOURNAL or to the Secretary of the Committee—

PAUL W. GOLDSBURY, M.D.

The committee having this matter in charge consists of the following named persons:

Dr. Walter B. Cannon,
Dr. Eugene R. Kelley,
Dr. E. H. Bigelow,
Dr. Alfred Worcester,
Dr. G. H. Wright, Harvard Dental School,
Dr. A. W. Gilbert, Commissioner of Agriculture,
Dr. Payson Smith, Commissioner of Education,
Mr. Frank F. Dresser, Atty., Smith, Gage & Dresser, Worcester,
Mrs. William Lowell Putnam,
Dr. Paul W. Goldsbury, Secretary, Deerfield, Mass.

IMPENDING DANGERS.

125 Main Street, Spencer, Mass.

Mr. Editor:—

The individual members of the entire medical profession in the United States face dangers of which they are but dimly aware. We individuals are apt to think that the medical problems will be satisfactorily solved by those whom we have elected officers of our various societies. But such is not the case. The men elected to such offices can only act an expression of their own views, which in many instances does not coincide with the view of the rank and file. It is, therefore, not as an alarmist that I appeal to the individual practitioner to inform himself on *every* question that comes up for the consideration of the profession, form a definite opinion, and let the result of his thinking be known to his fellow practitioners and the elected officials of the various societies. If in the years to come social medicine has us enmeshed in its irksome bonds, let us blame only ourselves.

We are not to blame that laws have been *suggested* which will bind the physician hand and foot as a vassal of the state, but we shall be to blame if such laws secure passage.

We are coming more and more under state or social espionage. It has even been proposed that every physician record names and addresses of all patients with copies of prescriptions. Florida even has passed a law transferring birth record custody from the Health Department to county judges, the judges to receive a fee twice the size formerly allowed.

Medicine faces the possibility of being controlled by bureaus, political in origin, capricious in administration, and controlled by prejudice and ignorance.

Each year brings home concrete examples of the things I mean, and eventually we must, if we maintain our independence as a profession, arouse ourselves to that individual responsibility which is ours.

The members of the Brookfield Medical Club realize that even a small unit can have some influence in the shaping of medical affairs, and have authorized a medico-legal committee, mentioned elsewhere in the JOURNAL, to receive complaints from any of its members in regard to evasions of the law on the part of industrial concerns in its territory and to act in accordance with their best judgment. It creates an active agent for the adjustment of medical questions in a limited area and the example could be well followed by more pretentious organizations. I have not said it all. Every community has its own peculiar problems. More will be heard of our club later, but in the meantime, I earnestly suggest that every community which has any problem should hasten to solve it.

Very earnestly yours,
J. R. FOWLER, M.D.

THE ALCOHOL QUESTION.

Mr. Editor:—

Your recent editorial on the alcohol question with special reference to the administration of various forms of alcohol by physicians, appeared to me sound, and presented the matter in a somewhat new light. So much has been said against those who are in favor of the restriction of the use of alcohol that comparatively little appears in the papers from that point of view at present. Silence, however, does not imply that there is lack of interest. I am, therefore, sending a statement signed by a group of representative physicians throughout the country, which was forwarded in April to various officials in Washington, and I also sent a copy to Senator Lodge. So far as I know, this list has not been generally published. I hope you will consider it representative enough in character to merit appearance in your JOURNAL.

Very truly yours,
ELLIOTT P. JOSLIN.

To whom it may concern:

The undersigned physicians of the United States desire to place on record their conviction that the manufacture and sale of beer and other malt liquors for medicinal purposes shoud not be permitted. Malt liquors never have been listed in the United States Pharmacopoeia as official medicinal remedies. They serve no medical purpose which cannot be satisfactorily met in other ways, and that without the danger of cultivating the beverage use of an alcoholic liquor.

(Signed)

Donald S. Adams, M.D., Visiting Surgeon, Out-Patient Department, Memorial Hospital, Worcester, Mass.
Howard S. Anders, M.D., Phiadelphia, Pa.
James Anders, M.D., Professor of Medicine, Graduate Medical School, University of Pennsylvania, Philadelphia, Pa.
R. A. Bartholomew, M.D., Associate in Gynecology and Obstetrics, Emory University School of Medicine, Atlanta, Ga.
Albert M. Barrett, M.D., Professor and Director of State Psychopathic Hospital, University of Michigan, Ann Arbor, Mich.
W. A. Bastedo, M.D., Assistant Professor of Clinical Medicine, Columbia University, 3rd Vice President U. S. Pharmacopoeial Convention, New York City.
J. T. J. Battle, M.D., Member Guilford County Board of Health, Greensboro, N. C.
†Harvey G. Beck. M.D., Pres. Baltimore City Medical Society, Baltimore, Md.
M. A. Blankenhorn, M.D., Assistant Visiting Physician, Lakeside Hospital, Cleveland, Ohio.
George Blumer, M.D., Clinical Professor of Medicine, Yale University, New Haven, Conn.
Frank van de Bogert, M.D., Instructor in Pediatrics, Albany Medical College, Schenectady, N. Y.
Robert Curtis Brown, M.D., Member of Medical Staffs of Columbia and Milwaukee Children's Hospitals, Milwaukee, Wis.
David Chester Brown, M.D., Ex-President, Connecticut State Board of Health, Danbury, Conn.
James W. Bruce, M.D., Instructor in Pediatrics, University of Louisville Medical School, Louisville, Ky.
Ferderick Brush, M.D., Medical Director, The Burke Foundation, White Plains, N. Y.
John Bryant, M.D., Boston, Mass.
Richard C. Cabot, M.D., Boston, Mass.
C. N. B. Camac, M.D., Medical Director, Gouverneur Hospital (Bellevue and Allied Hospitals), New York City.
Walter B. Cannon, M.D., Boston, Mass.
David Cheever, M.D., Boston, Mass.
Henry W. Cheney, M.D., Assistant Professor Diseases of Children, Northwestern Medical College, Chicago, Ill.
David Murray Cowie, M.D., Professor of Pediatrics and Infectious Diseases, University of Michigan, Ann Arbor, Mich.
Elbridge G. Cutler, M.D., Consulting Physician, Massachusetts General Hospital, Boston, Mass.
John M. Dodson, M.D., Dean, Rush Medical College, Chicago, Ill.
C. W. Edmunds, M.D., Professor of Pharmacology and Therapeutics, Assistant Dean of University of Michigan Medical School, Ann Arbor, Mich.
Cary Eggleston, M.D., Assistant Professor of Pharmacology, Cornell Medical School, New York City.
Haven Emerson, M.D., Medical Adviser of Bureau of War Risk Insurance; Lecturer, Teachers' College, Columbia University, New York City.
Bernard Fantus, M.D., Associate Professor of Therapeutics, Rush Medical College, Chicago, Ill.
Charles E. Farr, M.D., Instructor in Surgery, Cornell Medical College, New York City.
Eugene Lyman Fisk, M.D., Medical Director, Life Extension Institute, New York City.
H. L. Foss, M.D., Surgeon-in-Chief of the Gersinger Memorial Hospital, Danville, Pa.

George W. Gay, M.D., Senior Surgeon, City Hospital, Boston, Mass.
Joel E. Goldthwait, M.D., Boston, Mass.
George W. Hall, M.D., Chicago, Ill.
Winfield Scott Hall, M.D., Ph.D., Professor of Physiology, Northwestern University Medical School, Chicago, Ill.
William Van V. Hayes, M.D., Formerly Professor of Diseases of the Digestive System New York Polyclinic, New York City.
John L. Heffron, M.D., Dean of College of Medicine, Syracuse University, Syracuse, N. Y.
James B. Herrick, M.D., Professor of Medicine, Rush Medical College, Chicago, Ill.
Alfred I. Hess, M.D., Clinical Professor of Pediatrics, University and Bellevue Medical School, New York City.
Henry F. Hewes, M.D., Boston, Mass.
Arthur D. Hirschfelder, M.D., Director of the Department of Pharmacology, University of Minnesota, Minneapolis, Minn.
L. Emmett Holt, M.D., Professor of Diseases of Children, Columbia University, New York, N. Y.
Herbert B. Howard, M.D., Reading, Mass.
John Howland, M.D., Professor of Pediatrics, Johns Hopkins University, Baltimore, Md.
Josiah C. Hubbard, M.D., Boston, Mass.
Reid Hunt, M.D., Ph.D., Boston, Mass.
J. N. Hurty, M.D., Phar.D., State Health Commissioner, Indianapolis, Ind.
Edwin O. Jordan, M.D., Professor of Bacteriology, University of Illinois, Chicago, Ill.
Elliott P. Joslin, M.D., Boston, Mass.
James E. King, M.D., Buffalo, N. Y.
J. H. M. Knox, Jr., M.D., Associate in Clinical Pediatrics, Johns Hopkins University, Baltimore, Md.
George M. Kober, M.D., Dean, Medical School, Georgetown University, Washington, D. C.
Jacques Loeb, M.D., Member of the Institute, The Rockefeller Institute for Medical Research, New York City.
Alexander Lambert, M.D., Professor of Clinical Medicine, Cornell University; Attending Physician, Bellevue Hospital, New York City.
George Roe Lockwood, M.D., Consulting Physician, Bellevue Hospital; Clinical Professor of Medicine, Columbia University, New York City.
Warfield T. Longcope, M.D., Bard Professor of Medicine, Columbia University, New York City.
Henry O. Marcy, M.D., Boston, Mass.
Charles H. Mayo, M.D., Surgeon, Rochester, Minn.
David Marvin, M.D., Professor of Pharmacology, University of Vermont, Essex, Vt.
Carey P. McCord, M.D., Professor of Preventive Medicine, University of Cincinnati, Ohio.
George W. McCoy, M.D., Surgeon, United States Health Service, Hygienic Laboratory, Washington, D. C.
E. Bosworth McCready, M.D., Paedologist to Juvenile Court, Allegheny County, Pittsburgh, Pa.
Thomas McDavitt, M.D., St. Paul, Minn.
Joseph McFarland, M.D., Professor of Pathology and Bacteriology, University of Pennsylvania, Philadelphia, Pa.
W. P. Merrill, M.D., Superintendent of Charity Hospital, Shreveport, La.
John D. Musser, Jr., M.D., Assistant Professor of Medicine, University of Pennsylvaia Medical School, Philadelphia, Pa.
Joseph L. Miller, M.D., Professor of Medicine, Rush Medical College, Chicago, Ill.
R. D. Mussey, M.D., Rochester, Minn.
Robert B. Osgood, M.D., Instructor in Surgery and Orthopaedic Surgery, Harvard Medical School, Boston, Mass.
Edward O. Otis, M.D., Professor, Tufts College Medid cal School, Boston, Mass.
Walter W. Palmer, M.D., Associate Professor of Medicine, Johns Hopkins Hospital, Baltimore, Md.
James M. Parrott, M.D., F.A.C.S., President, State Hospital Association, Kingston, N. C.
Roy G. Pearce, M.D., In charge Research and Diagnosis Division, B. F. Goodrich Rubber Co., Akron, O.
William E. Quine, M.D., LL.D., Dean, College of Medicine of University of Illinois, Chicago, Ill.
Walter R. Ramsey, M.D., Associate Professor of Diseases of Children, University of Minnesota, Minneapolis, Minn.
G. E. Robbins, M.D., Commissioner of Health, Chillicothe, Ohio.
Aaron J. Rosanoff, M.D., Clinical Director, Kings Park State Hospital, Kings Park, N. Y.
M. J. Rosenau, M.D., Professor, Harvard Medical School, Boston, Mass.
L. G. Rountree, M.D., Director of Department of Internal Medicine, Mayo Foundation, Rochester, Minn.
David D. Scannell, M.D., Visiting Physician, City Hospital, Boston, Mass.
*George H. Simmons, M.D., Chicago, Ill.
Frank Smithies, M.D., Associate Professor of Medicine, School of Medicine, University of Illinois; Secretary-General, American College of Physicians, Chicago, Ill.
Frederick B. Sweet, M.D., Surgeon, Springfield Hospital, Springfield, Mass.
W. S. Thayer, M.D., Professor of Medicine, Johns Hopkins University, Baltimore, Md.
James C. Thompson, M.D., Surgeon, United States Public Health Service, West Haven, Conn.
William C. Thro, M.D., Professor of Clinical Pathology, Cornell Medical School, New York City.
A. Vander Veer, M.D., Consulting Surgeon, Albany Hospital, Albany, N. Y.
Victor C. Vaughn, M.D., Dean, Medical School, University of Michigan, Ann Arbor, Mich.
Herman Vickery, M.D., Member Consulting Staff, Massachusetts General Hospital, Boston, Mass.
Alfred Scott Warthin, M.D., Profesor of Pathology, University of Michigan, Ann Arbor, Mich.
George W. Webster, M.D., Chicago, Ill.
Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics, Rush Medical College, Chicago, Ill.
Steven A. Welch, M.D., Consulting Physician, Rhode Island Hopital, Providence, R. I.
Ernest W. Wells, M.D., Attending Surgeon, Hartford Hospital; Consulting Surgeon, New Britain Hospital and Manchester Memorial Hospital, Hartford, Conn.
H. Gideon Wells, M.D., Professor of Pathology, University of Chicago, Chicago, Ill.
F. N. Whittier, M.D., Professor of Pathology and Bacteriology, Bowdoin College, Brunswick, Me.
De Witt G. Wilcox, M.D., F.A.C.S., Professor of Surg. Gynaecology, Boston University School of Medicine, Boston, Mass.
Harvey W. Wiley, M.D., Ph.D., Washington. D. C.
C. G. Willis, M.D., Huntington, W. Va.
Joseph E Winters, M.D., 25 W. 37th Street, New York City.
Jarvis B. Woods, M.D. Bangor, Me.
Paul G Woolley, M.D., Manager of National Pathological Laboratory of Michigan, Detroit, Mich.
Charles R. Borzilleri, M.D., Medical Director, Buffalo Columbia Hospital, Buffalo, N. Y.
J. Madison Taylor, M.D., Professor of Physiology, Therapeutics and Dietetics, Medical Department, Temple University, Philadelphia, Pa.

* Personal not official endorsement.
† Endorsed, substituting "is unnecessary" for "should not be permitted"